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# BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 3 1955

# THE EFFECT OF NICOTINE ON SPINOCEREBELLAR ATAXIA*

BY

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"Each synapse is an apparatus for co-ordination."
SHERRINGTON.

Ataxia resulting from disturbance of spinocerebellar mechanisms is a characteristic feature of disseminated sclerosis and the spinocerebellar degenerations. The latter are a group of disorders characterized by progressive incoordination, of which the pathological basis is degeneration of the cerebellum and associated tracts in the brain stem and spinal cord. Hereditary transmission is common, but the tendency varies and sporadic cases also occur.

Greenfield (1954) proposes the following classification:

A. *Predominantly Spinal Forms:*
1. Friedreich's ataxia (and allied syndromes)
2. Hereditary spastic ataxia

B. *Spinocerebellar Forms:*
1. Menzel type
2. Subacute spinocerebellar degeneration (carcinogenic and sporadic)

C. *Predominantly Cerebellar Forms:*
1. Holmes type
2. Diffuse atrophy of Purkinje cells (toxic and carcinogenic)
3. Olivo-ponto-cerebellar atrophy (Dejerine, André-Thomas)
4. Dentato-rubral atrophy (Ramsay Hunt)

Friedreich's ataxia is probably the commonest and best-known example of these disorders. It appears before the age of 20 years, and in one form or another recognition is not difficult.

Familial cerebellar degeneration falls into two main groups. In the type described by Menzel (1891) the disease process tends to be cerebello-petal in type and shows considerable variation. There is degeneration of the middle cerebellar peduncle, the pontine nuclei, the medullary olives, the cerebellar white matter, and cortex in that order of constancy. In the spinal cord one or more of the long tracts—that is, dorsal columns, spinocerebellar tracts, and pyramidal tracts—are degenerated in most of the recorded cases. It is apparently the same disorder as that described in sporadic cases by Dejerine and André-Thomas (1900), which they called olivo-ponto-cerebellar atrophy because of the noticeable atrophy of the olivary eminences and the pons. In the second type, described by Holmes (1907), where there is less variation, the degeneration is of a cerebello-fugal type. The disease predominantly affects the cerebellar cortex and vermis and those parts of the olives which are related anatomically to the degenerated area of the cerebellar cortex. In this type also there are sporadic cases which generally resemble those described by Marie *et al.* (1922) as late cortical cerebellar atrophy.

Greenfield reiterates that no differential diagnosis is possible during life between these two forms of spinocerebellar degeneration. In the Holmes type the disease tends to begin later (average age at onset is 45 years), to last rather longer, and to result eventually in some degree of dementia. The Menzel type begins on an average ten years earlier. In both types there is slow and usually progressive disturbance in walking; dysarthria and clumsiness of hand movements follow later. Nystagmus is inconstant; urinary incontinence may occur. The clinical picture in different members of a family may vary considerably, but the pathological picture tends to remain the same.

Nothing is known of the causation of these disorders. The hereditary tendency, though strong in some cases, should not discourage search for other contributory factors. A knowledge of what aggravates a disease process in the nervous system may provide a clue to its origin or to the way in which it deranges nervous mechanisms. In this report I wish to describe the influence of nicotine on three patients with spinocerebellar degeneration and one patient with disseminated sclerosis.

## Case 1

The patient is a man aged 65. When first seen in June, 1949, he was 60 and complained of increasing unsteadiness of gait of some six years' duration. He had injured his pelvis in an accident thirty years previously, but otherwise had enjoyed good health. He had no complaint except the unsteadiness of his gait. My notes at the time state: "He is emphatic that this unsteadiness is provoked by smoking." He was a coarse, garrulous type of man who had "knocked about a bit." There was no history of alcoholism, but he had had gonorrhoea several times. I suspected some deterioration of personality.

On examination the main abnormalities consisted of ataxia of the lower limbs without weakness or sensory loss and some ankylosis of the right hip-joint. Pupils were normal, there was no nystagmus, speech was slightly slurred, and movements of the upper limbs were a trifle incoordinate. Knee- and ankle-jerks were exaggerated; plantar reflexes were flexor. The abdominal reflexes were absent. He walked

*A communication in the form of a ciné film and voice recording was presented to a meeting of the Association of Physicians in Manchester, May 27, 1955.

unsteadily with his feet planted wide apart. He faltered or stumbled when he turned and held his arms away from his body. He could not walk heel-toe fashion, and when lying down the heel-knee-shin test was poorly performed. It was clear that his unsteadiness was not wholly due to his injured pelvis, and a tentative diagnosis of spinocerebellar degeneration was made.

I advised admission to hospital, but he declined, and I did not see him again until November, 1951. He had obviously deteriorated. His speech was now definitely affected, being slurred and jerky, his gait was grossly ataxic, and the upper limbs were more involved. There was no nystagmus, all deep reflexes were grossly exaggerated, and there were bilateral extensor plantar reflexes. There was no sensory loss. *X*-ray examination showed evidence of osteoarthritis of the right hip and lumbosacral spine; the spinal fluid was normal; the Wassermann reaction was negative in blood and spinal fluid.

Once again he affirmed that smoking aggravated his trouble. On this occasion, when accompanied on a ward round with my house-physician (Dr. A. Parry Jones), we decided to subject him to a test. We observed his gait, noted the degree of cerebellar ataxia of the upper limbs, trunk, and lower limbs, and listened carefully to his speech. Our notes made at the time state: "January 5, 1951: 10.35 a.m., walked unsteadily across the room, speech slurred, but spoke rapidly and could be easily understood. 10.40 a.m., started to smoke a cigarette. 10.45 a.m., speech much slower, slurring more obvious. 10.50 a.m., started second cigarette, *speech now incomprehensible.* 10.55 a.m., *he can now scarcely walk*; would have fallen several times unless caught. By 11.40 a.m. his speech and gait had returned to their state before testing."

The effect was quite striking. There was no doubt that his speech and gait abruptly deteriorated when he smoked. He himself began to feel unsteady when he had smoked only half a cigarette; when he had finished it there was no difficulty in recognizing the profound worsening of his ataxia. Thereafter, on three or four occasions, I repeated the test, recording his voice on a disk and making a ciné film of his ataxia before and immediately after smoking. None of my colleagues who have seen the film and heard the recording have expressed any doubt about the evidence. The patient himself was somewhat disturbed by these tests. He had restricted his smoking before I first saw him in 1949; and after a test in which he smoked a cheroot and was unable to get out of bed owing to profound ataxia he refused to co-operate further and left hospital. He would not allow me to make an intravenous injection of nicotine, but the evidence clearly showed that a "strong" cigarette had more effect than a "mild" one, and a cheroot or cigar had more effect still. Two ounces (57 ml.) of brandy had no effect on his disability.

He was a garage proprietor, and as his disease progressed he sold his business. He became demented for some months in 1954 and was in a mental hospital. He has periodic urinary incontinence, and spends his days sitting in a chair in his bedroom. Recently he allowed me to make an intravenous injection of 2 mg. of nicotine acid tartrate. He became hopelessly ataxic; his speech, scarcely comprehensible before injection, became completely so in a minute.

The injection caused him to void urine involuntarily. He cannot smoke half a cigarette without experiencing an intensification of his ataxia. He says, "My head goes round and round, and I cannot do anything." The cigarette has to be thrown away; he cannot stub it out, so clumsy are his hand movements. He knows of no other agent which influences his disability in this way.

There is no family history of any nervous disorder. He had always smoked about 30 cigarettes a day; he did not smoke a pipe. He thinks he first noticed the unusual effects of tobacco-smoking two years before I first saw him—that is, four years after the appearance of the first symptoms of his illness.

### Case 2

A man aged 53 was first seen in February, 1955, and complained of the "staggers." Until two years previously he had enjoyed good health, but then began to have trouble in walking. At first symptoms were intermittent, but they had worsened steadily in the previous six months. He found that he could not walk in a straight line; he tended to stumble to one or other side. His toes caught on steps or kerbstones, and turning, bending, and getting up from a chair or couch induced sudden ataxia. He frequently toppled over at his work, and was finally forced to give up working a few weeks before I saw him. Clumsiness of hand and arm movements was occasionally experienced, and his speech also suffered at times. He felt that there was some fluctuation of his symptoms, but it was less evident now than formerly. Fatigue, overexertion, and prolonged standing aggravated his ataxia. With some effort, he could walk to work in the morning, but returning home at night was a trial.

He had noticed that after sitting down for a long time his gait would be noticeably "drunken" for the first few hundred yards; it would then improve. All these symptoms had, of course, led to allegations of drunkenness from time to time. He rarely drank alcohol and had not noticed that it affected him in any unusual way. When fatigue, a long walk, or a long period of sitting down aggravated his ataxia he noticed that his speech might also deteriorate. Sometimes, however, his speech would become slurred and difficult without any noticeable increase of his ataxia. He recalled two occasions when ataxia of gait and speech overwhelmed him; on both occasions he was doing heavy labouring. His speech became unintelligible, and he would have fallen if he had not been supported. His legs felt "rubbery" and turning his head caused objects to appear "out of focus."

An elder brother (Case 3) also suffered from this disease, and on a visit to Case 2, when these symptoms were developing, suggested that he restricted his smoking. Case 3 had found that tobacco seriously worsened his disability. Case 2 had smoked a pipe since the age of 18 years—4 oz. (113 g.) of strong tobacco each week (12 pipefuls daily). He soon found that his brother was right, and two years ago cut down his smoking to 2 oz. (57 g.) of mild tobacco weekly (six pipefuls daily). He found that one pipeful had no effect, but if he smoked two pipefuls consecutively his gait and/or his speech would be temporarily upset. The effect would usually appear while he was smoking the second pipeful, and would last until ten minutes after he had finished. Others had noticed these effects, and on several occasions he had tried to give up smoking altogether. Tea, coffee, or alcohol did not upset him; a cup of tea or sucking a sweet perhaps helped to restore his speech at times. *Tobacco was not constant in its adverse effects:* he had "good" days and "bad" days. Sometimes he would get up in the morning and soon realize that his unsteadiness was such that if he smoked too freely he would regret it. At other times the effect of smoking would be noticeable on a day when he felt "better." He appeared to be quite definite that his symptoms fluctuated apparently spontaneously, that tobacco often had an adverse effect, and that fatigue sometimes provoked temporary exacerbation of his symptoms. Concerning different brands of tobacco, he said that "strong" tobacco had a "stronger" effect. One particular brand which he said was "greasy" nearly always made him stagger.

On examination the only abnormal signs were found in the nervous system. There was horizontal nystagmus to right and left, slight incoordination of voluntary movements of the upper limbs, and an ataxic gait. He swayed and sometimes stumbled to right and left; he held his feet apart and would make shuffling steps on turning. He could not walk more than a few steps without deviation and could not walk heel-to-toe. He could not stand on one leg for more than a few seconds. His trunk swayed sometimes when sitting on a

couch. The heel-knee-shin test demonstrated the incoordination of his lower limbs. When first seen his speech was normal; he spoke rapidly and fluently. Later, during investigation in hospital, there were times when his speech was slurred and slower. There was no abnormality of sensation; power in the arms was good, in the lower limbs it was slightly reduced. All deep reflexes were exaggerated; there were a few beats of clonus at the knees; the right plantar reflex was extensor; left probably extensor. The abdominal reflexes were absent in all four quadrants. When he had not smoked for 24 hours the electroencephalogram showed low-voltage alpha rhythm at 10–11 c./s. arising in the occipital lobes. Scattered fast activity, also of low voltage, appeared in all leads. There were long runs of 5–6 c./s. theta waves in all leads after one minute of hyperventilation. There was no significant difference after smoking.

The effect of smoking was closely observed over a period of two weeks in hospital. He rarely went a day without smoking at all. There was never any abrupt deterioration on smoking. He always felt steadier and said his legs were "under better control" when he had not smoked for several hours. After smoking two strong pipefuls of tobacco an aggravation of his ataxic gait was observed on several occasions; it had no effect on his speech or on the ataxia of his upper limbs, or on the nystagmus. A ciné film clearly demonstrated, however, the increased unsteadiness on walking. There were days when this effect was more noticeable than on others. On three occasions 3 mg. of nicotine acid tartrate was injected intravenously. On the first and second occasions his speech was not affected, but he felt unsteady, and his gait was more ataxic for ten to twenty minutes. On the third occasion there was a noticeable and rapid deterioration in his speech, which was recorded on a disk. He also became grossly ataxic and could not walk unsupported. The effect passed off in 15 minutes. It is of interest that on this occasion he had said that on waking in the morning he had realized he was "in for a bad day." He felt unsteady, thought his speech was slurred, and said he had to walk more carefully. A recording of his speech immediately before the injection, when compared with that recorded the following day, demonstrated that it was in fact slurred and drawling. Nicotine had a noticeable and immediate effect. Alcohol—2 oz. (57 ml.) of brandy—had no effect.

### Case 3

This patient, aged 58, was the brother of Case 2. He kindly consented to enter hospital in February, 1955. He is an intelligent person and was most co-operative. He knew of no other member of the family who had suffered any form of nervous disease. He became affected when he was 53, first noticing a tendency to bump into people when walking; he sometimes staggered. There had been slow progression, and two years ago he had consulted his doctor. He was forced to give up riding a cycle after experiencing sudden loss of balance. When walking he noticed that his feet would strike the ground with varying intensity; he tripped over small obstacles and had to take care on stairs, in passages, and in crowded streets. As in the case of his brother, he appreciated that his symptoms fluctuated, and he thought that fatigue, a long walk, and sitting down for some hours tended to aggravate his ataxia. Occasionally there was fleeting diplopia, and he found that his speech suffered. On two occasions when he had walked two or three miles, after a meal, he experienced a sudden deterioration in gait and speech. He was with a friend on one occasion and his brother (Case 2) on the second. These individuals were alarmed at his condition. He said his speech became practically unintelligible. He had to rest for some time before returning home. He felt quite well when he had set out for these walks, and recalls that they took place immediately after a midday meal. He thinks he was smoking during these walks, but cannot be quite certain about this. On reaching his office in the morning after a fifteen-minute walk he said his handwriting is "often jerky, angular, and almost illegible."

He first noticed the adverse effect of tobacco-smoking three years ago. At first he was not quite certain about it, as the effects were not constant. With increasing experience, however, he became sure of it, and warned his brother when he learned that he too was becoming ataxic. He found that smoking affected his legs; they felt "weak," and he described a sensation of "tension" in them. He was never a heavy smoker like Cases 1 and 2. He used to smoke some ten to twenty cigarettes a day. He now smokes five; he finds that if he smokes more his gait, handwriting, and speech become disturbed.

On examination the only abnormal signs were to be found in the nervous system. There was fine horizontal nystagmus to left and right, slight incoordination of voluntary movements of the upper limbs, moderate incoordination of the lower limbs, with brisk deep reflexes, retained abdominal reflexes, and flexor plantar responses. There was no muscular weakness or sensory loss. The Romberg test was positive, and there were slight swaying movements of the trunk when he was sitting. When walking he looked at the ground, deviated periodically to right and left, stumbled when trying to walk heel-to-toe fashion, and always held the seat of a chair when he sat down or stood up. When lying down the heel-knee-shin test was positive. His speech was sometimes normal; more frequently it was slightly slurred. An electroencephalogram was normal and unaffected by smoking.

The effect of cigarette-smoking was studied over a period of two weeks. He was well able to do without cigarettes for 24 hours at a time. At such times he was aware of an improvement in his balance, walking, handwriting, turning, stooping, speech, and the general execution of voluntary movements. But I myself could never be sure of this. A test was then arranged. He abstained from smoking for 24 hours. His voice was recorded immediately before starting to smoke, and again immediately after smoking three cigarettes in 30 minutes. He felt unsteadier, there was a noticeable increase in his ataxia, but his speech was only slightly affected. He was sent to walk around the hospital corridors, and half an hour later he came hurrying back to my room as best he could. His speech was grossly affected—slurred and drawling and jerky—and it was immediately recorded on a disk. His ataxia had increased still further. The effect on speech and gait began to pass off in 15 minutes and was back to its state before smoking in 30 minutes.

In similar tests he could always appreciate the deleterious effect of smoking on speech and/or gait, but it was not always readily apparent to me. One could never be certain that the symptoms were fluctuating independently of smoking. Pedalling for 20 minutes on a stationary cycle did not affect him. It was decided, therefore, with his permission, to give him an intravenous injection of nicotine acid tartrate. 3 mg. was injected and there was an immediate and striking effect on speech and gait. Immediately before the injection his voice was recorded as he read from a script, but when the injection was completed he was unable to speak at all for some two minutes. He made jerky, drawling, and unintelligible sounds. Blurring of sight probably added to the difficulty of reading from a script; but it soon passed, and re-reading demonstrated the profound increase of his dysarthria. The effect on his voice passed off in 15 minutes. During this time he sat in a chair and could not stand unsupported; he swayed about drunkenly and his arms were grossly ataxic.

This effect was as striking as in Case 1, so he was persuaded to allow me to repeat the test with a view to recording the ataxia of gait on a ciné film. This again showed the same sequence of events. The injection of nicotine produced immediate and striking ataxia, and a ciné film was made showing the gait immediately before and immediately after the injection. His gait returned to normal in 12 minutes. His speech on this occasion was again grossly affected. On both occasions the effect started when only 1 mg. of the substance had been injected.

### Case 4

A man aged 30 was first seen in October, 1950, when aged 26, for disturbance of gait. At the age of 18 he had been rejected for National Service because of some clumsiness of movement and gait. When he was 25 a diagnosis of disseminated sclerosis had been made on the basis of nystagmus, intention tremor, spastic-ataxic gait, pyramidal signs, and a paretic type of colloidal gold curve in the cerebrospinal fluid.

He said that he first became aware of some difficulty in walking when he was 17, but until he was in his early twenties it gave him little trouble. However, walking had become slower and progressively more laboured; he tended to sway about as if drunk, he tired rapidly, and his legs felt more and more "stiff." He experienced no paraesthesiae and does not recall having had any diplopia or blurring of vision. There were no urinary symptoms. Action tremor and clumsiness of the arms appeared when he was 26. Slight slurring of speech was first noticed (by his parents) during the past year. There have been no remissions or exacerbations; the course of the disease has been steadily progressive. There is no family history of neuropathy.

He is small (5 ft. 1 in.—155 cm.), sturdy, and has a short neck with a low hair-line. Several of his toes are webbed. There was temporal pallor of the optic disks, fine horizontal nystagmus to right and left, and vertical nystagmus on upward gaze. Speech is slightly slurred and scanning, and he has bilateral intention tremor, absent abdominal reflexes, slight weakness of the lower limbs with exaggerated knee-jerks, bilateral ankle clonus, and bilateral extensor plantar reflexes. Superficial sensation is unaffected and vibration sensation is only slightly affected in the legs; postural sensation is normal. There is no dissociated type of sensory loss. His gait is more spastic than ataxic.

Because of the short neck, the early onset of disability, and the progressive course, *x*-ray examination of the skull base and cervical spine was carried out. Two anomalies were revealed. Tomography clearly showed that there was basilar invagination with the tip of the odontoid 1 cm. above MacGregor's line, and an unfused posterior arch of the atlas. Lumbar air encephalography, vertebral arteriography, and opaque myelography have been carried out at different times during the past five years, and have all yielded normal results. There is no indication of any anomaly of the brain stem or cerebellum such as the Arnold–Chiari deformity. The bony abnormalities could not of themselves produce the neurological disability. A recent lumbar puncture has for the second time yielded a spinal fluid which gave a paretic type of colloidal gold curve. A diagnosis of disseminated sclerosis seems unavoidable.

He first noticed the unsteadying effects of smoking four or five years ago. He began to smoke cigarettes when he was 18, and until four years ago averaged twenty cigarettes daily. He has had to restrict them to five a day because of the effect on his disability. At first he found that walking and movement generally were disturbed only if he chain-smoked, but in more recent years sensitivity to nicotine has increased remarkably. For some time he has found that when he is only halfway through his first cigarette "I get a queer, unpleasant rubbery sensation beginning in my legs and coming up all over me." By the time he has finished the cigarette co-ordinate movements of the arms and legs are more difficult to perform. He says, "This is nothing like the sensation you get when you start smoking as a youngster." He does not feel faint or giddy or nauseated. As he reaches the end of the cigarette his increasing clumsiness makes it difficult for him to get the cigarette into his mouth; he uses one hand to steady the other. He tries not to inhale and has learned to smoke slowly, and only one cigarette at a time, and never when he is standing or walking. The effect of one cigarette passes off in 15 to 20 minutes. His family knew of this influence of smoking and have encouraged him to give it up altogether. He drinks little alcohol and has not noticed any unusual effects from it. A hot bath "makes me feel utterly useless and helpless." He is not aware that his speech is slurred, and did not think that smoking affected it.

Accordingly a smoking test and a nicotine test were arranged. His voice was recorded and a ciné film made of his movements and gait immediately before and after each test. It was found that before he had smoked half a cigarette he felt a curious sensation in his legs which spread up to his trunk, and as he continued to smoke his arms and head became tremulous and he had increasing difficulty in handling the cigarette. When he had smoked half of it writing was slower and halting, and his signature deteriorated. He could finish the cigarette only by using both hands to hold it steadily as he brought it to his lips. He swayed slightly in his chair; nystagmus was not altered and speech remained unchanged. His intention tremor increased and when he stood up to walk his steps were very faltering and difficult, and his progress was very much slower. His legs appeared to be more spastic and he had difficulty in lifting each foot from the ground. Smoking one cigarette undoubtedly increased his disability. There were no side-effects of a syncopal nature; he felt quite well in himself and the effect passed off in 20 minutes.

On another day he was given a slow intravenous injection of nicotine acid tartrate as he lay on a bed. When 1 mg. had been injected his legs started to tremble, then his arms and trunk. When 2 mg. had been injected he became pale, perspired, breathed heavily, and was frightened. The injection was stopped. Speech remained unchanged and power in the limbs was not reduced. Deep reflexes remained brisk. Intention tremor was markedly aggravated. He was able to sit on the edge of the bed seven minutes after the completion of the injection and he was obviously more disabled by the uncertainty of his movements. Two minutes later he was able to stand and to walk a few steps with great difficulty. He shuffled along, periodically swaying about, with his legs apparently rooted to the ground and with his arms held out from his body to help maintain balance. Fifteen minutes after the injection he began to improve again, and in another fifteen minutes he had practically returned to his initial status. The syncopal reaction complicated the test in this case, but it soon passed off, and did not seem to account for the overall neural disturbance.

In one respect his reaction appeared to differ from that of the other three patients. Their abnormality of gait was almost entirely cerebellar in character; the gait in Case 4 was much more spastic than ataxic. Nicotine increased the ataxic element of the gait in the former cases, but in Case 4, although the intention tremor was aggravated, it was the increase of the spastic disturbance of gait which struck one so forcibly. In each case the dominant disturbance of the gait appeared to suffer most.

### Discussion

The first consideration is the diagnosis. Disseminated sclerosis is present in Case 4. The feature common to the first three cases is the onset of cerebellar ataxia in the fifties without previous nervous symptoms. All three showed progressive disturbance of gait, incoordination of the upper limbs, and characteristic cerebellar disorder of speech. Mental deterioration and periodic incontinence of urine occurred in Case 1; fleeting diplopia has been experienced in Case 3; there is nystagmus in Cases 2 and 3; exaggerated deep reflexes were present in all three patients and extensor plantar reflexes in Cases 1 and 2. In no one was there any subjective or objective disturbance of sensation, apart from slight impairment of vibration sense in the legs in Case 4. No other members of either family are known to have been affected by any type of nervous disorder.

Disseminated sclerosis sometimes develops in the fifties, but this is rare. Few neurologists would agree with the late Foster Kennedy (1950), who said it showed "an extraordinarily exact age incidence—16 to 45. Similarly appearing conditions should be viewed askance if they occur outside this most exact period—16 to 45."

McAlpine *et al.* (1955) say that "the diagnosis of multiple sclerosis must be made with considerable reserve when symptoms commence after the age of 50, particularly when they are progressive." Transient diplopia (Case 3) and periodic urinary incontinence (Case 1) are symptoms which have been recorded in cases of spinocerebellar degeneration confirmed by necropsy (Schut, 1950; Greenfield, 1954). It is known, of course, that there is a small familial incidence of disseminated sclerosis, which Pratt *et al.* (1951) estimated in a series of 310 cases to be 6.5%. The distinctive paraesthesiae and impairment of sensation of disseminated sclerosis are seldom met with in the spinocerebellar degenerations. The history in Cases 1, 2, and 3 was of a disorder of insidious onset beginning at the ages of 54, 52, and 53 years respectively. In Cases 2 and 3 symptoms were at first intermittent, but thereafter slowly progressive. In Case 1 symptoms were progressive from the onset. Intermittency of disability was noticed by Schut (1950) in the earlier stages of his series of cases of proved hereditary ataxias. In discussing the differential diagnosis of disseminated sclerosis and spinocerebellar degeneration Pratt *et al.* stress the late onset and the progressive course in the latter disease, but it is clear that the diseases may be confused. With these considerations in mind a diagnosis of progressive spinocerebellar degeneration was made in Cases 1, 2, and 3.

### Effects of Tobacco

All four patients had already noticed aggravation of their ataxia and/or dysarthria by smoking. In Case 1 smoking two cigarettes had an effect on speech and gait that was striking; he was then scarcely able to walk or talk. Three years later, when he agreed to an intravenous injection of nicotine, his ataxia, now gross, became temporarily overwhelming, and his speech became incomprehensible. In Case 2 smoking two pipefuls of tobacco did not affect speech, but made walking unsteadier. Intravenous nicotine on one occasion greatly affected his speech, and, unsupported, he could not walk for about ten minutes. In Case 3 a striking and rapid deterioration in speech occurred half an hour after smoking three cigarettes. On two occasions when he was given an intravenous injection of nicotine he immediately became grossly dysarthric and ataxic. In Case 4 movement and gait were obviously disturbed by smoking one cigarette; speech was not affected. After an injection of 2 mg. of nicotine acid tartrate intravenously speech remained unchanged, but intention tremor was aggravated and walking became a great effort; he could progress only in short shuffling steps.

The alteration in speech and gait on smoking and after the injection of nicotine have been recorded on gramophone disks and ciné film. Ataxia of the trunk is noticeable before these patients stand up or try to walk. The effect on speech, when it occurs, is to make it slower, more drawling, slurred, and monotonous; the utterance as a whole becomes remarkably irregular and jerky. Both vowels and consonants are affected, and phonation as well as articulation is involved. An explosive tendency can sometimes be detected and respiration appears to be poorly integrated in the speech mechanism. Towards the end of a sentence the patient seems to run out of breath. Hiller (1929), in his studies of speech disorders in Friedreich's ataxia, particularly noticed this difficulty of subordinating respiration to the meaning and inner sense of speech. Holmes (1910) also comments on the ataxia of respiration which accompanies speech in Friedreich's ataxia and the "curious short inspiratory whoops." The irregularity of breath pressure in cerebellar speech has been mechanically recorded by Scripture (1930).

Apart from the urinary incontinence in Case 1 and transient blurring of vision in Case 3 no other significant effects of nicotine injection and tobacco-smoking were noted in these patients. There was no clouding of consciousness, no nausea or vomiting. They all perspired slightly and experienced a tingling sensation in the limbs, especially in the injected arm. Case 3 had slight substernal discomfort. Case 4 became pale and hyperventilated. Deep reflexes apparently remained unchanged.

*When the effect of tobacco was observed and recorded on the first patient in 1951 inquiry of patients with disseminated sclerosis revealed no indication that tobacco influenced speech or ataxia.* Several patients with gross dysarthria were inveterate smokers, and they or their relatives had not noticed any nicotine effect. The exception was one patient aged 58, a bank manager, with disseminated sclerosis of slight degree, whose symptoms of spastic-ataxia, paraethesiae, and periodic urinary frequency had made their appearance 12 years previously. He had more than once mentioned to me that he thought smoking affected his unsteadiness, and recalled his surprise on observing the degree of his ataxia on a ciné film taken the year previously while on holiday. His wife had reassured him that the film was taken after he had just smoked a cigar. But Case 4 remains the only patient with disseminated sclerosis in whom I can say nicotine actually aggravates the disability.

*Eight other patients with progressive spinocerebellar degeneration were studied, and in none was there any suggestion that tobacco-smoking exerted any harmful effect. The patients had not noticed any aggravation of symptoms on smoking, and nicotine injections proved harmless.* Clinically these patients differed in no essential way from Cases 1, 2, and 3. Nicotine injections have also been harmless in some 20 different patients with various organic diseases of the brain and spinal cord. These included two cases of hereditary spastic paraplegia, four of disseminated sclerosis, four of striatal tremor, and three patients with cerebellar tremor and ataxia of the upper limbs, without other signs, first appearing in childhood.

### Tobacco-smoking and Disseminated Sclerosis

I have not come across any reference to the effect of tobacco in the spinocerebellar degenerations, but there are some observations on record in disseminated sclerosis.

Franklin and Brickner (1947), during a study of 18 cases of disseminated sclerosis that showed constriction of retinal arterioles with scotomata which were said to be reduced by vasodilator drugs, mentioned that two patients said that intention tremor was aggravated by smoking cigarettes. One patient was tested, and it was found that his tremor was in fact increased by smoking one cigarette; his ability to draw horizontal lines on a sheet of paper was noticeably affected. Alcohol and papaverine seemingly inhibited this temporary effect of tobacco. No tests were carried out in the second patient. Franklin and Brickner also state that some of their patients with disseminated sclerosis have noted symptomatic improvement when they have stopped smoking. They were inclined to attribute the effects of tobacco to vasoconstriction. Brickner (1950) mentions another case with "an intention tremor regularly made transiently worse by smoking a cigarette" and a fourth patient who "invariably had transient blurring of vision and an increase in his leg weakness on smoking a cigarette."

McAlpine *et al.* (1955) also comment on the temporary effect of tobacco on the symptoms of disseminated sclerosis. They mention one patient (aged 27) who gave up smoking for some months, and on resuming the habit "then noticed that after starting a cigarette his legs felt heavy and dead for about a quarter of an hour." In discussing the differential diagnosis of disseminated sclerosis from progressive cerebellar degeneration these authors (p. 186) describe the case of a man who began to suffer from progressive cerebellar ataxia at the age of 51. A diagnosis of progressive cerebellar degeneration had already been made on this patient at a London teaching hospital before they had seen him. But he later became impotent and had urinary frequency, urgency, and occasional incontinence. His speech was not affected until "one evening his wife noticed that he could hardly speak and he was so unsteady that he had difficulty in getting upstairs. His speech remained indistinct." When "he had a couple of drinks or smoked, both his speech and walking at once worsened for a short time—a statement which was confirmed by his wife." McAlpine *et al.* considered that these observations pointed to a diagnosis of disseminated sclerosis rather than to a primary form of

cerebellar atrophy. The resemblance to my Cases 1, 2, and 3 is strong, and reasons have already been given for favouring a diagnosis of progressive spinocerebellar degeneration in these cases.

### Pharmacological Properties of Nicotine

Few drugs possess more complicated pharmacological effects on the nervous system than nicotine. There are effects on muscular fibres and neuromuscular junctions, on autonomic ganglia, and also on the central nervous system. At each level, moreover, the effect depends on the concentration of the alkaloid and the degree of intoxication. The effects may be classified as stimulant and depressant, while the ultimate response of any one structure may thus represent the algebraic summation of the different effects of nicotine (Goodman and Gilman, 1941; Bovet *et al.*, 1947).

There are about 20 mg. of nicotine in a cigarette (Roth, 1951; von Ahn, 1954), but estimates of the amount absorbed into the blood stream vary considerably—from 0.4 to 3 mg. per cigarette (Ling and Parry, 1949; von Ahn, 1954).

At neuromuscular junctions nicotine first stimulates and then exerts a "curare-like" effect. Curare, however, is more active at neuromuscular junctions than at ganglia, and the reverse is true for nicotine. In my patients nicotine produced no peripheral paralysis; muscular power and reflex activity were unimpaired. In Case 3 a controlled injection of tubocurarine was followed by characteristic peripheral paresis without producing any effect like that of nicotine. A peripheral neuromuscular block is therefore unlikely to be the explanation for the phenomena described in these patients.

In the case of the ganglia of the autonomic system the effect of nicotine is again to excite, then to paralyse them. The pharmacology of the autonomic synapse appears to be essentially the same as that at the neuromuscular junction. At both sites acetylcholine is a major factor in the transmission of the excitatory state. In the ganglia nicotine does not interfere with the release of acetylcholine by impulses from the pre-ganglionic fibres, but renders the ganglionic cells more sensitive and then more resistant to the chemical mediator. The classical experiments of Langley and Dickinson (1889) showed that if a nerve pathway is blocked by applying nicotine to a ganglion it indicates the presence of a synapse in that ganglion. When nicotine is applied directly to a nerve fibre it interferes with conduction only when it is in high concentration. Intravenous tetraethylammonium bromide in Case 3 did not affect speech or ataxia.

Again, at higher levels of the nervous system nicotine has striking effects. It stimulates respiratory, vasomotor, and emetic centres in the medulla and can produce convulsions. These centres are depressed by larger doses of the drug, and death usually results from respiratory failure. The action of nicotine on respiration is particularly prominent; there are peripheral and central, stimulatory and inhibitory effects. Similarly, the circulatory effects of nicotine are marked and complex. There is at first slowing of the heart, peripheral vasoconstriction, and elevation of blood pressure. With increasing dosage opposite effects are produced and the manner in which they are brought about depends on the multiple sites of action of the alkaloid (von Ahn, 1954).

The actions which acetylcholine brings about at parasympathetic nerve endings were described by Dale as "muscarine-like," while those exerted at autonomic ganglia were "nicotine-like." One of the nicotine-like properties of acetylcholine is the liberation of the antidiuretic hormone of the pituitary gland by stimulating the supraoptic nucleus (Pickford, 1947). That nicotine itself possesses the same property was demonstrated by Burn *et al.* (1945). These authors concluded that stimulation of the supraoptic nucleus was one of the effects of smoking. In diabetes insipidus much larger amounts of nicotine are required to produce an antidiuretic action (Garrod and Cates, 1950). Burn (1951) points out that the antidiuretic hormone of the posterior lobe of the pituitary gland is believed to be identical with the pressor hormone (vasopressin) which causes vasoconstriction. If the accentuation of symptoms by nicotine in my patients was due to vasoconstriction affecting the central nervous system we might have expected to see more evidence of cerebral ischaemia. But what was so impressive about the tests was the way in which the two outstanding symptoms—the dysarthria and the ataxia—were affected. Cerebral vasoconstriction, if it occurred, might conceivably have dire consequences on nervous mechanisms already deranged by disease, but if this were so we might also expect to see adverse effects of smoking in patients with cerebral arteriosclerosis. Everyday experience does not lend support to this argument, but little is known on the matter.

Eranko (1955) has demonstrated that nicotine also has a stimulant action on the adrenal glands. It causes a release of noradrenaline, the chemical transmitter of sympathetic nerve impulses, from cells of the adrenal medulla. Some of the pressor effect of nicotine may be due to this action.

Another way in which nicotine may accentuate the symptoms of spinocerebellar disorder must be considered. The best-known pharmacological effect of nicotine is the production of synaptic block in autonomic ganglia. Where there is no synapse, as in the sensory ganglia of the spinal nerve roots, nicotine does not block transmission of the nerve impulse. But neither does it seem to interfere with synaptic conduction in the spinal cord (van Harreveld and Feigen, 1948) nor in the cardio-inhibitory vagal mechanism (Heymans and van den Heuvel-Heymans, 1950). Chemical transmission of nerve impulses is not confined to the autonomic nervous system. Acetylcholine is a transmitter at neuromuscular junctions, where nicotine is also active, and possibly also at synapses within the central nervous system. The growth of the conception of chemical transmission in the nervous system has recently been summarized by Dale (1955), who postulates chemical mechanisms of transmission "at all the synapses in the immense complexity of the central grey matter." Is it not conceivable that the nicotine effect I have described in these cases is central in nature and concerned with synaptic transmission? Sherrington (1947) wrote that "each synapse is an apparatus for co-ordination." Certainly accentuation of existing incoordination was the phenomenon witnessed in these patients.

Heymans and de Vleeschhouwer (1948) and Heymans and Estable (1949) demonstrated that D.P.C.P.C. (diethylaminoethyl-1-phenylcyclopentane-1-carboxylate) and D.P.T. (N-diethylaminoethyl-phenothiazine), new synthetic drugs possessing therapeutic value in Parkinsonism, also possess powerful anti-nicotine properties. It was suggested that the therapeutic activity of some of the new drugs used in Parkinsonism might be related to the ganglion-blocking effect on the tonic centres of the extrapyramidal tracts or on cholinergic transmission (Bovet and Bovet-Nitte, 1948). Tripod (1949) investigated the relationship between the anti-nicotine effect and parasympathicolytic or autonomic activity of D.P.C.P.C. and D.P.T. He found that the anti-nicotine properties are related to the various sites of action of the alkaloid and not to a specific blocking of parasympathetic effects. The therapeutic activity of D.P.C.P.C. and D.P.T. in Parkinsonism does not appear to be related to its anti-nicotine activity.

Bovet and Longo (1951), however, found a parallelism between the antagonism of some drugs—diethazine hydrochloride ("diparcol"), caramiphen hydrochloride ("parpanit"), and benzhexol hydrochloride ("artane")—against the tremors induced by nicotine, and the clinical results obtained with these drugs in the symptomatic treatment by Parkinsonism. They considered their observations to be a new argument in favour of the development of a central action by cholinergic preparations. "It does not seem unreasonable, on this basis, to think that drugs effective in Parkinsonism block, at the level of the mesencephalic and bulbopontine centres, the effects of a cholinergic transmission no longer harmonically controlled by the superior centre, destroyed or deeply injured by disease."

I have not found that nicotine aggravates the symptoms of Parkinsonism. In Case 1 diethazine appeared to have no effect: in Cases 2 and 3 it aggravated the ataxia. Case 3 actually had to retire to bed for a few days with severe ataxia, and he considered that diethazine was more harmful than nicotine. Although nicotine has no known therapeutic value its usefulness as a pharmacological "tool" has long been appreciated. The observations here recorded suggest that the effects of the drug on the central nervous system in health and disease require further examination.


### Summary

An account is given of four patients with spinocerebellar ataxia who complained of the adverse effect of tobacco-smoking on their disability. The diagnosis in the first three patients is one of progressive spinocerebellar degeneration; the fourth has disseminated sclerosis.

The correctness of their observations was confirmed. Tobacco-smoking had a striking effect on the dysarthria and on the ataxia of the lower limbs in Cases 1 and 3. In Cases 2 and 4 speech was not affected, but ataxia was noticeably increased.

These effects were also produced in each patient by the intravenous injection of nicotine acid tartrate.

It is suggested that they are brought about by some action of nicotine on the central nervous system which may involve disturbance of synaptic transmission of nerve impulses.

Tobacco-smoking and intravenous nicotine had no harmful effect in eight other patients with progressive spinocerebellar degeneration. They were also harmless in 20 patients suffering from various organic diseases of the brain and spinal cord.


I wish to thank Dr. E. Payne for carrying out many of the control tests and Drs. G. Howells, A. L. Lewis, and C. Pallis for their assistance in recording the observations.

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# FORTY YEARS ON

## A G.P.'s RETROSPECT AND REVIEW

BY

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With the lapse of forty years since qualification one is tempted to look back and try to assess the development of medical knowledge and practice in its impact on the general practitioner, and, at the same time, to attempt to see in proper perspective the progress and retrogressions in the various branches of medicine; for not all change is for the better, and occasionally it is definitely and demonstrably for the worse. Such a review must necessarily be incomplete, and even fragmentary; but it may be of interest, and just possibly of use.

It is perhaps a little obvious, but it is true, to claim that, in spite of certain regrettable tendencies, progress in the healing art has at least proceeded *pari passu* with, and has often excelled, that in other fields, and one remembers with gratitude that in spite of almost kaleidoscopic change the great fundamental principles taught in our student days remain unshaken, and as applicable now as they were then.

### A Sound Medical Philosophy

When Sir Robert Hutchison (1928) wrote his matchless little trilogy of 50 pages—*The Principles of Diagnosis, Prognosis, and Treatment*—he provided the student and the practitioner for all time with a medical philosophy so sound that adherence to it would provide the means of avoiding many of the varied pitfalls of the practice of medicine. For in these days the enormous developments in the diagnostic field and the innumerable drugs which pour from the analytical laboratories put a strain on the judgment of the practitioner that has never been experienced before in such intensity.

To take one danger as an example—the temptation to a short-cut in diagnosis by ordering a roving inquiry into the blood, the urine, and the excretions generally, and perhaps elaborate *x*-ray investigations without a careful history, and without a thorough clinical examination. Probably we have all been guilty of this at times, and one or two lucky hits may lead us further astray; for, just as Sir Robert Hutchison says, "If you once get into the habit of guessing you are diagnostically damned"—so is the man who forms the habit of expecting the laboratory and the *x*-ray room to save him from those clinical observations and investigations that are an essential preliminary before any elaborate procedures can be justified.

I remember so well how a young woman whom I had attended for a difficult labour, complicated by hydrocephalus and hydramnios, fell into the hands of a pathologist (a relative) who, after the most involved laboratory investigations of almost every conceivable secretion and excretion but without proper clinical examination, issued a report with the diagnosis of intestinal toxaemia and endocrine insufficiency (these at the time were fashionable names for non-existent clinical conditions). What the patient was really suffering from was physical and mental exhaustion following a difficult labour, ending in a stillborn baby, and a mitral stenosis which was the only organic condition present, and this was omitted from the report.

*X*-ray investigations, though more and more reliable, can still be misleading, and experience seems to show that where the clinical indications point strongly in one direction and the *x*-ray result in another it is still generally safer to follow the former to a conclusion than to be overruled by the latter. Some years ago I was called to an old lady of 80 who had fallen down three stairs, at the foot of which

she was lying. The right foot was everted, and, though there was no shortening, clinically the diagnosis of intracapsular fracture of the neck of the femur seemed reasonably certain. Fortunately (or unfortunately), "portable *x*-ray apparatus" was in the district, and an excellent *x*-ray picture was taken of both hips, and this failed to reveal any bony injury. A few days later shortening became obvious and a further *x*-ray film revealed a fracture, and gross displacement had occurred, as, satisfied too easily by the first *x*-ray examination, I had taken no steps to prevent it.

### Developments in Medicine

As students many of us probably believed, 40 years ago, that advances in medicinal treatment would be slow and unspectacular and that progress in surgery would be as rapid and startling as it had been in the previous 40 years. While the latter is possibly true, it might well be claimed that medicine has, in fact, stolen the limelight. When one remembers the discovery of liver in the treatment of pernicious anaemia, insulin in diabetes, and the revolution in the treatment of the acute infections by penicillin and the sulphonamides, and the ever-growing list of potent antibiotics, it is difficult to remember in detail some of the conditions, like the pneumonias, where one had to stand by almost (as it seemed) a spectator and watch the dread battle, with ability to render only what often amounted to symptomatic relief, or little more. But with all the new remedies (and their number is in itself an embarrassment) it still remains true that an essential preliminary to their use is a proper attempt at a diagnosis, and too early a resort to them may complicate the evidence and even endanger the ultimate issue. We can all probably recall cases where we have succeeded in rendering a deep abscess sterile by the use of antibiotics, whereas the necessity for the earlier evacuation of pus might have been quite obvious, if we had not been so much inclined to expect the drugs to perform impossibilities.

### Pernicious Anaemia in the Aged

One thing has particularly impressed itself on me in practice and that is the danger of overlooking that insidious disease pernicious anaemia in the aged, and I often have a fear that I may have done so. Two cases illustrate this well; both came to light in the summer of 1948, and both patients are alive and well at the time of writing.

*Case 1.*—A man aged 74 in July, 1948, was attending a local hospital regularly as a "diabetic," and, according to my notes, he had had a harmless glycosuria for twenty years. I had not seen him for some time and was startled at his poor colour and general appearance. The possible presence of malignant disease almost suggested itself, and seemed to be confirmed when a search revealed a large hard swelling in the scrotum. This, however, on transillumination proved to be a tense hydrocele. It was then that the possibility of pernicious anaemia presented, and as the patient's condition had rapidly deteriorated I did an immediate blood count. This showed: R.B.C., 880,000; Hb, 36%; C.I., 2. Large and repeated dosage with "anahaemin" was followed by an astonishing recovery. In six weeks he had every appearance of health, and with 2 ml. of anahaemin monthly, at the age of 80, he does five days' work a week as a gardener. The most recent blood count showed: R.B.C., 5,380,000; Hb, 122%; C.I., 1.15

*Case 2.*—A woman aged 85 in August, 1948, had increasing dyspnoea, a loud systolic murmur at the apex, and B.P. 185/95. A diagnosis of cardiac failure seemed likely, especially as some basal pulmonary oedema developed. Increasing pallor, however, led me to do a blood count. This showed: R.B.C., 1,120,000; Hb, 36%; C.I., 1.6. An intensive course of anahaemin was followed by fortnightly doses of 2 ml. to the present time. At the age of nearly 92 she still cooks for the family. A recent blood count showed: R.B.C., 4,280,000; Hb, 78%; C.I., 0.92. The significance of these two cases lies in the fact that in both an alternative diagnosis seemed at first more likely, especially in view of their advanced ages.

One is apt as a student to get the impression that disease will, with wide variations, remain true to a pattern described in the standard textbooks, and it is more than a little disconcerting to find that disease changes in character and incidence as time goes on. Thus rickets and chlorosis seem largely to have disappeared in this country, and scarlet fever has completely changed in its clinical manifestations in the last 100 years. My father told me that in his early years of practice the commonest cause of sudden death in children was scarlet fever (presumably haemorrhagic). Personally, I can remember only one fatal case—from bronchopneumonia as a complication.

### Therapeutics

A wise teacher of therapeutics used to advise us, in regard to new drugs, to be two or three years behind the times. More and more one can discern the value of that advice, especially in these days. As an example it may be worth while to call to mind a substance called cinchophen. It was introduced with the usual flourish, and was alleged to cure gout almost overnight. As colchicum always seemed to deal with gout as efficiently as it had already done for several hundred years, it seemed reasonable to refrain from the immediate use of cinchophen. Within a few months reports began to come in of cases of acute yellow atrophy of the liver and consequent fatalities from the use of the new drug. Cinchophen soon faded out of employment, and indeed students in these days have possibly never even heard of it. Mention might be made in this connexion of sulphamerazine, the dangers of which are now well known but which were not recognized for some little time after its introduction.

Some drugs, though of great therapeutic value, tend to be used too early, too readily, and with great prodigality, like chloramphenicol when it was first introduced. An impression got about that it had superseded penicillin, and it was used for quite trivial conditions. Soon after its introduction the profession was flooded with literature advancing extravagant claims for the new drug. One of these said, "As soon as clinical or *x*-ray diagnosis of pneumonia has been made, it is advantageous to start treatment with chloromycetin." Fortunately, within a few days of this claim an authoritative report by a subcommittee of the Medical Research Council made it clear beyond argument that "penicillin was just as good or possibly better than either aureomycin or chloromycetin in the treatment of clinical pneumonia." The subcommittee also pointed out that it was decidedly safer. Now at last its limitations and dangers are recognized, but not before enormous expenditure has been incurred and probably a number of lives have been lost by its indiscriminate use. Gairdner (1954) reported a case of death from chloramphenicol where a "modest amount" had been given for two periods of only four days with a six-month interval between. This, of course, does not imply any criticism of its use in that particular case.

More than once it has been my experience to be called to see patients who were already treating themselves, or their relatives, with sulphonamides because they had been encouraged to do so by their previous medical attendant in some other district, who, presumably by some exercise of second sight, had made a diagnosis of an ailment which was to occur in the future, and had provided a surplus of sulphonamide tablets to be used at the patient's discretion (or the lack of it). It is always repugnant to criticize even an unknown colleague, but to condone in any terms such a practice would surely be nothing less than cant.

### Preventive Medicine

In the field of preventive medicine the general practitioner still has a part to play, though there appears to be a tendency for the public health authorities to take over more and more responsibility for it. There is, however, one disease in which any improvement in the remarkably constant mortality rate must come through the general practitioner, and that is tetanus. It may surprise some to know that in this country the death rate from diphtheria is now considerably less than half that from tetanus. Many parents seem very willing to have their children immunized with a triple antigen—against diphtheria, pertussis, and tetanus—and the introduction of tetanus toxoid does not seem to have any undesirable effect so far as my own experience

goes. In regard to the older population, a selective active immunization of those particularly exposed to injuries contaminated with soil seems well worth while. In this connexion farmers and gardeners obviously come to mind, and schools where rugby football is played. It must be remembered, of course, that during their military service most men, and probably some women, are actively immunized against tetanus, and this in time may well bring down the mortality rate.

### Developments in Surgery

Though developments have been startling in nearly every branch of surgery, their impact on general practice has been less, for obvious reasons. In fact, the general practitioner, thanks to the antibiotics and chiefly to penicillin, has been able to render diseases like osteomyelitis and suppurative mastoiditis comparative rarities, and has often been able to obviate even a consideration of surgical intervention.

Perhaps the most striking thing in regard to surgery is the tendency for surgeons to become more and more highly specialized, and the great general surgeon is becoming gradually more difficult to find, or so it seems. When one comes to minor surgery there is little doubt that, for various reasons, less of it comes the way of the general practitioner than formerly, and more finds its way to the out-patient department of the hospitals. Those practitioners who are fortunate enough to be attached to cottage hospitals can derive much benefit in this respect, and in all sorts of ways. It cannot be too strongly emphasized that part-time hospital work for the general practitioner is a vital factor in keeping him clinically alive.

### Developments in Anaesthesia

In the field of anaesthesia the developments have been truly revolutionary, and here again there is a tendency towards specialization, and, though the general practitioner is called upon less often than formerly to give anaesthetics, it is perhaps all the more important that he should be proficient in sound and simple methods when he is required as an anaesthetist.

There can be no question that many of the advances in surgery have been made possible only by the discovery and skilful use of new anaesthetics and the introduction of complicated anaesthetic machines, though the very elaboration of these has its dangers. It is indeed open to doubt whether the introduction of many of the modern anaesthetic agents have contributed notably to the safety of the patient so far as the anaesthetic is concerned, and it is significant that 56 deaths from regurgitation and vomiting form the "largest single definite group" in an analysis of 232 deaths associated with anaesthesia (*Anaesthesia*, 1952). Even this is far less startling than the much greater relative proportion of fatalities from aspiration of vomit in forceps deliveries. The reason for this is quite clear, and is discussed at some length later. For my own part, leaving aside the question of hospital work and of nitrous oxide for minor surgery and dental extractions, I believe that the general practitioner in domiciliary work would be wise to rely for adults on open ether preceded by atropine and perhaps slow induction with a minimal amount of an intravenous barbiturate, and on open ether preceded by atropine and vinyl ether for children. There are two points in regard to the barbiturates. I believe strongly that the demands one occasionally gets from a dentist for a rapid "knock-out" dose of barbiturate should be stoutly resisted: after all, *he* is not chiefly responsible for the outcome of the anaesthetic. The other point is that I regret the virtual disappearance of hexobarbitone, which always seemed to me the safest of the intravenous barbiturates. It is a strange fact that, in spite of all the new anaesthetics, open ether, and open ether alone, is still the safest of them all.

### Developments in Obstetrics and Gynaecology

It would perhaps be unfair to expect equally great developments in all specialties, and it is a little difficult to see such great progress in obstetrics and gynaecology as in other fields, at any rate from the point of view of general practice. There are the hormones, of course, but it would be easy to exaggerate their importance. They have not yet succeeded in determining sex, and, though the female may be made more masculine, nobody has yet succeeded in rendering the male parturient, and for this, at least, we may be thankful. Mention might be made of radiological pelvimetry, but much of the credit for this must go to the radiologists.

A reference was made above to certain "regrettable tendencies," and it is in the realm of obstetrics that the most glaring example of this has occurred. Someone once somewhat unkindly described a gynaecologist as "a physician who attempts to cut a straight line with a curved pair of scissors." There may be an element of truth in this, but it is a harmless occupation compared with that of the obstetrician who inflicts the lithotomy position for forceps delivery, under general anaesthesia, on a patient who is unprepared for the anaesthetic; and yet that is what has been happening for some years to an increasing extent, with the consequent occurrence of fatalities from aspiration of vomit. For patients in labour are hardly ever properly prepared for anaesthesia—in contrast to gynaecological patients, who nearly always are.

In 1950 Professor Jeffcoate stated categorically that "the lithotomy position is best for all operative deliveries." At the time this pronouncement was challenged, especially from the general practitioner's point of view, on account of "the very real risk of inhalation asphyxia or pneumonia." During the last ten years numerous fatalities have been recorded from aspiration of vomit during forceps delivery, including a series reported by Professor Jeffcoate (1953), where no less than half the fatalities associated with forceps delivery were due to this cause. In these cases and in those reported by Parker (1954) it is not denied that the lithotomy position was used. In others which come within my own knowledge this also was the case. Those who were brought up in the use of the lateral position, and who practise it, know that fatalities from this cause just do not occur—the law of gravity takes care of that—whereas in hospital, particularly, the patient who vomits in the lithotomy position under general anaesthesia is almost literally in a death trap because of the very rigid fixation secured by the lithotomy supports. It may well be asked, on the other hand, whether anyone could produce records of a series of fatalities, or even of one single fatality, from aspiration of vomit when the patient has been delivered in the lateral position.

It may be taken that when death occurs from aspiration of vomit (and this cause would appear to account for about half the anaesthetic fatalities in forceps delivery) the lithotomy position has been used and is primarily responsible. We in the profession know this, and know also that it is avoidable. The practice of using and teaching the lithotomy position for delivery appeared insidiously as a bad habit—for it is little more—and the sooner it is abandoned the better, as such a formidable indictment can be brought against it. It is indeed high time that those responsible for the teaching of obstetrics should revert to the proved safety of the lateral position, for few things are so tragic as a maternal death.

### Influence of Legislation

No review of 40 years of general practice would be complete without some reference to national insurance legislation. The temptation is to omit any discussion for fear of a charge of political bias; for any opinion must be purely personal, and is likely to be regarded as controversial. It does rather seem, however, that the grave fears which were expressed regarding the destruction of the freedom of the general practitioner have not materialized to any great extent. On the other hand (and here again is a personal opinion), the destruction of the voluntary hospital system is nothing less than a national disaster, and it cannot be denied that hospital expenditure has enormously increased under regional control.

The voluntary hospital system brought out all that was best in the public at large and in the medical profession, and so far as the patients are concerned it only needed subsidizing and co-ordinating for it to have survived and continued its honourable and beneficent course, side by side with an inevitably increasing number of State hospitals.

### Maternity Medical Service and Laboratory Services

When one considers the new maternity medical service, as it affects the general practitioner, it is idle to deny that it places a premium on inadequate and incomplete service, for when only the two paltry minimum antenatal services are rendered the safety of the patient is by no means assured. So far as the doctor is concerned, if he yields to the temptation to be content with the minimum service to the patient, he may be unable to detect some of the serious complications of pregnancy, and still less will he be fitted to deal with the possible complications of labour. At its best the scheme does not encourage good work, and at its worst it is a travesty of the art of obstetrics. It is true, however, that the new maternity service is restrictive only by implication, and if the practitioner disregards the insidious enticements of pecuniary considerations there is nothing to prevent him from giving a full and complete service, though he may be forgiven for looking somewhat ruefully at the financial reward if he does.

When one comes to the laboratory service it must be admitted that it is much easier for the general practitioner to get investigations done than it was before 1948. Whether the accuracy of the results is as impeccable as before is open to doubt, but one has to remember the enormous increase in the amount of the work and in the complexities of the investigations. Thus it is not always safe to place *absolute* reliance upon a laboratory report even if it is positive, and much less if it is negative. It is most disconcerting to find, for example, that a blood Wassermann reaction returned as positive was ultimately proved conclusively to have been a mistake.

### Conclusions

There does not seem to be any reason to suppose that, in this country at any rate, general practice is ever likely to be discarded, and there is certainly no cause for the general practitioner to labour under any sense of inferiority. Indeed, with specialization becoming more and more intense, a general outlook with a wide and balanced view is more than ever necessary. On the other hand, the colossal advances in almost every branch of medicine make it increasingly difficult for the general practitioner to keep abreast of the times, and it is all the more important to develop in practice sound methods in diagnosis, and to use well-proved methods in treatment. He need not imagine that it is his duty to inflict on his patients every new drug as it arrives, flaunted by all the ingenuity of modern advertisement, but rather it is his function to protect them from too easy a resort to untried remedies.

More than ever is it necessary in this distracting age to develop and maintain a sense of discrimination and a degree of equanimity which will prevent the foolish retort and action, for few things are more damaging to doctor and patient than the angry word. Fortunately the day is often saved by a sense of humour which, as Sir Robert Hutchison says, "helps us to bear with the vagaries of our patients, and still more with those of their relatives, and to derive amusement instead of annoyance from the eccentricities of our colleagues."

Beneath the crest of my old hospital are the words *Nihil humani a me alienum puto*, and when one remembers that the origin of our hospitals was essentially a religious foundation and pre-eminently Christian it is not difficult to see how the voluntary system arose, but although, through a misguided appreciation of values, that system has been destroyed, the voluntary spirit remains. If this can be preserved, in a somewhat materialistic age, then we need not despair; for the future of medicine is full of hope, and the general practitioner, fortified by so much that is worthy in the traditions and teaching of the past, can go forward confidently towards the great achievements that assuredly lie ahead in the art and practice of Medicine.

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# HEREDITARY DEAFNESS IN FAMILY WITH EAR-PITS (FISTULA AURIS CONGENITA)

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The ear-pit, or pre-auricular sinus, is a hereditary abnormality that is quite common in this country. Ewing (1946) found pits in 0.9% of the 3,500 British Service men he examined; Onodi (1918) found a somewhat similar incidence in Germany; Fournier's survey in a French garrison (1919) revealed a much smaller incidence, but in parts of Asia and of Africa some 5 to 10% of people may show the defect (Aird, 1946).

The pit may be on one or both ears; it is usually on the margin of the helix just above the tragus, but it may be elsewhere on the pinna or in front of it, and there may be more than one pit on each ear. The pit is circular or elliptical, and "barely wide enough to admit the tip of a sharpened lead pencil" (Edmonds and Keeler, 1940). Its size is, in fact, quite variable. Occasionally the skin in front of the tragus is poorly developed so that it looks like a scar, but the pit itself is by no means an obvious lesion, and a medical colleague in whom we noticed one did not know he had it (Fig. 1). The pit may, however, suppurate and infect the pre-auricular gland (Bailey, 1949). Occasionally a person with ear-pits also has branchial fistulae or some other less obvious sign of a faulty development of one of the branchial clefts, such as a depression in the skin

FIG. 1.—An ear-pit on the margin of the helix.

of the neck, or a nodule with perhaps cartilage in it. This was so in one of Heusinger's cases (1864), and also in one of Sir James Paget's (1878). Both these authors also noted deafness in some of their patients. Přecechtěl (1927) gave a pedigree of people with ear-pits, branchial fistulae, and deafness, but Cockayne (1933) thought the association of deafness with fistulae might have been fortuitous. Most of the authors who have reported pedigrees of ear-pits do not mention deafness; for instance, Starkenstein (1928) does not describe it in his study of his own family.

Our pedigree illustrates the striking inheritance of ear-pits; its main interest, however, lies in the incidence of deafness in the family.

### The Buckinghamshire Family

The first case we saw was No. III 10 in the pedigree shown in Fig. 2. This patient came to the surgery because she had an abscess in front of one ear; she had had a similar abscess twice before. She had pits on both sides and she had suffered from a mild deafness from adolescence onward. Her daughter and her mother had ear-pits, and this led us to study the rest of the family. We were able to examine most of our patient's close relatives ourselves, but for some of them the information was obtained from another member of the family after we had shown them what to look for; we have shown by a cross where the individuals had died and by a stroke (\) where the information was from hearsay only.

The pedigree shows 108 relatives. Among the 74 descendants of I 3 and I 4, the grandparents of our patient, 17 had ear-pits on the anterior margin of the helix on one or both sides. In 16 of them the transmission of the defect from generation to generation can easily be followed, and it is consistent with the effect of a dominant gene. The remaining man with pits (IV 6) had normal parents and grandparents; an aunt (III 5) was said to have had a pit, but in the lobe of one ear and not in the usual place.

Particular features of the pedigree are shown in the footnotes to it. Four of the people with ear-pits, and one without pits, had evidence of a defect in the development of a branchial cleft. The manifestations included bilateral discharging branchial fistulae (III 21), a dimple at the site of a point which had discharged in earlier years (II 3) or where there had previously been a skin tag (II 8), and a cartilaginous nodule at the lower end of the sternomastoid (IV 28). These abnormalities were all at the lower end of the sternomastoid or at the junction of its lower and middle thirds.

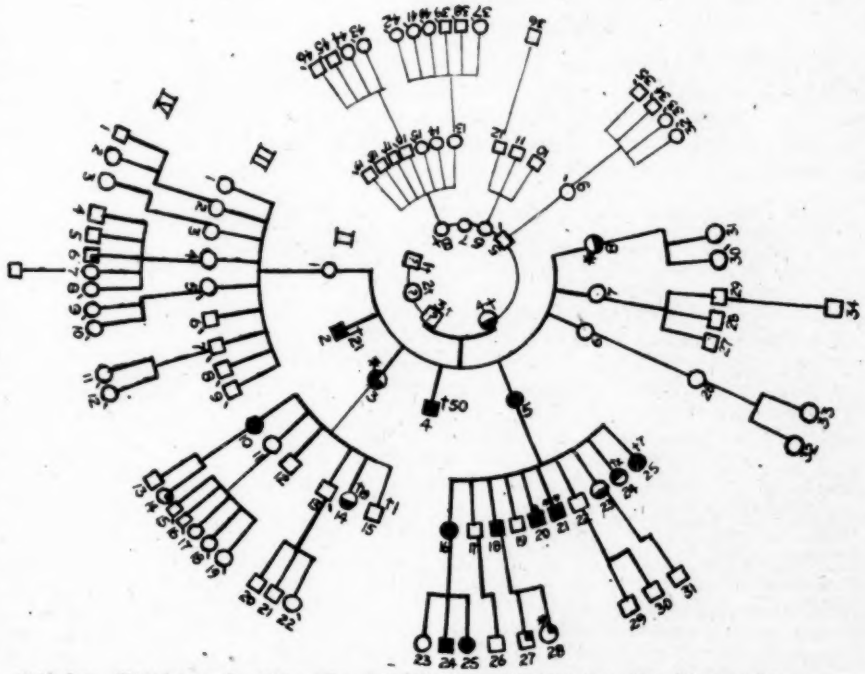
Of the 17 people with pits, 12 were deaf and one (IV 6) was not. Of the remaining 4, one died at the age of 2 (III 24) and three are very young (IV 14, 27, 28) and might become deaf as they grow older. Of the people without pits, three were deaf; one of these (II 8) had a branchial pit. We have not included in these numbers the ancestors I 3 and I 4, about whom there were conflicting accounts. The deafness varied from mild to severe. In some it had been recognized from childhood, others were quite certain that they had been able to hear perfectly until they were about 20 years old, when their hearing had begun to deteriorate. Their disability was most noticeable when they had a cold, but air conduction was better than bone conduction. There was no evidence of any vestibular disorder. Cases studied by Miss E. Hadfield at the Radcliffe Infirmary were shown to have a perceptive deafness; their audiograms showed that both high and low tones were involved, but usually the high tones more than the low. We were particularly interested in the three people without pits who were deaf. One was dead, but we were able to establish that in the other two (II 8 and III 23) the deafness resembled that of the people with pits, and their audiograms followed the same pattern.

There was no unusual incidence of stillbirths or of other abnormalities in the family.

### Discussion

The inheritance of ear-pits has been reviewed by Gates (1946). The defect may appear in about half the siblings of an affected family, and it is transmitted as a Mendelian dominant; but it may skip one or two generations; and in the same family it may affect either ear, and sometimes both ears. The irregular manifestations are well illustrated in uniovular twins (Quelprud, 1940; Gedda, 1951); only one member of a pair may be affected in spite of their similar genetic constitution and prenatal environment. As with many other genetic abnormalities in man, the responsible gene, though dominant, shows "incomplete penetrance"; diabetes may be quoted as an outstanding example (Li, 1954).

Three forms of hereditary deafness have been described (Albrecht, 1926)—congenital deaf-mutism, transmitted as a recessive characteristic; otosclerosis, transmitted as a dominant; and a hereditary perceptive deafness (Mondini), also transmitted as a dominant (Albrecht, 1925). This disease was much discussed by German authors under the Nazi regime, because it raised eugenic problems for them (Albrecht, 1934; Schneider, 1937; Loebell, 1938; Steinberg, 1938; Langenbeck, 1938). They called the disease hereditary hardness of hearing (*Innenohrschwerhoerigkeit*). The deafness appears during childhood or even later, and it varies greatly in severity; but the patient's vestibular function is normal. Sections have revealed a failure in the develop-



III 10: Scar. III 21: Scar on R. with two pits. II 2: ? Club-foot. II 3: Club-foot. III 5: ? Pit in ear lobe.
Symbols: □, Male. ○, Female. Pits: L, ◴; ◔, R. Deafness, ◒. Pits and deafness, ●. Branchial pit or fistula, L•○•R. †, Dead (with age at death). A stroke (\) = Hearsay only. ◐ Pit L and deafness.

FIG. 2.—Pedigree of ear-pits, branchial fistulae, and deafness.

ment of the modiolus and of the organ of Corti in the upper spirals of the cochlea (Albrecht, 1933; Altmann, 1950).

The deafness in our patients with ear-pits resembled in every way the hereditary hardness of hearing described by German authors, and it seems possible, by analogy, that it is to be ascribed to a malformation of the cochlea. How is the association with ear-pits to be explained?

There are several hypotheses to account for the ear-pits themselves (Monie, 1950). Wood-Jones and I-Chuan (1934) supported Heusinger's original suggestion (1864) that they represent a persistence of the dorsal end of the first ectodermal branchial groove; a popular alternative ascribes the pits to the failure of fusion of His's embryonic ear tubercles (Congdon *et al.*, 1932), but these do not in any case normally fuse.

Some members of our family, and of many others that have been described before, had abnormalities of branchial clefts other than the first. This might be taken to imply that the pits represented a persistence of the first cleft, but more serious malformations of the ear, such as microtia, may occasionally appear in families with pits (Schwendt, 1891; Edmonds and Keeler, 1940), and such malformations are not explained by either of the hypotheses outlined. Furthermore, neither will account for the deafness, unless one invokes Spemann's theory that the normal development of the labyrinth depends on its relation to neighbouring structures, which determine the differentiation of the labyrinth by producing organizer substances (Needham, 1942).

On the other hand, there need not be an anatomical connexion between the deafness and the ear-pits and other defects. The deafness appeared alone in some members of our family. Some instances of hereditary deafness may be associated with anatomically far removed lesions, for instance in the kidney (Reyersbach and Butler, 1954), not to mention what Darwin (1859, 1868) called the whimsical relation of deafness and blue eyes in white cats (Bamer, 1933). Needham (1942) quotes the genetic anomaly of sheep with persistent gill slits as an example of a gene which interferes with second-grade organizers in the head region. We suggest that the pits, the branchial fistulae, and the deafness in our family are the independent effects of a gene which may act in this way.

### Summary

We record the pedigree of a family in whom ear-pits were associated with a hereditary deafness of the inner-ear type. Some members also had branchial fistulae. The three defects may be the independent effects of one dominant gene.

We are indebted to Dr. E. T. C. Tewson, of Thame, Oxon, in whose practice the first cases were seen; to Miss E. Hadfield for making available to us the results of her detailed investigations; and to Mr. J. W. Cope for the audiogram on II 8.

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# SOME OBSERVATIONS ON LONDON FOG

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During the winter of 1954–5 there were no long periods of dense fog in London, but visibility was reduced to less than 200 yards (183 metres) for a few hours at a time on several occasions. Generally, the relative humidity was then between 85 and 100%, and there were accompanying increases in the levels of smoke and sulphur dioxide. One such fog occurred during the night of December 15–16, when, in addition to an increase in the concentration of smoke and sulphur dioxide, sulphuric acid was detected in the water droplets in amounts representing a concentration of about 1 mg. per cubic metre of air.

On January 19 the visibility was reduced to as little as 70 yards (64 metres), although the relative humidity remained low, and no water droplets were present. The smoke concentration was exceptionally high. The Air Ministry's three-hourly summary of readings at Kingsway, London—1,500 yards (1,370 metres) from the hospital—is given in Table I.

These conditions were rather local in character, and affected several parts of London for limited periods. There was a definite smell of coal smoke, and it was noticeably irritant.

### Methods

Measurements of smoke and sulphur dioxide were made using the standard D.S.I.R. instrument (Atmospheric Pollution in Leicester, 1945), but the interval between successive observations was reduced from twenty-four to three hours during the smoky period. Additional measurements of smoke were made over shorter periods by drawing air at 0.7 cu. ft. (0.02 cubic metre) a minute through a Whatman

TABLE I.—*Meteorological Conditions on January 19/20, 1955: Three-hourly Summary of Readings on Air Ministry Roof Kingsway (1,500 yards (1,370 metres) from the Hospital)*

| | January 19 | | | | | | January 20 | |
|---|---|---|---|---|---|---|---|---|
| | 9 a.m. | 12 noon | 3 p.m. | 6 p.m. | 9 p.m. | 12 mdt. | 3 a.m. | 6 a.m. |
| Temperature: °F. .. (°C.) .. | 34·8 (1·6) | 43·5 (6·4) | 44·8 (7·1) | 41·1 (5·0) | 34·6 (1·4) | 31·2 (−0·5) | 29·6 (−1·5) | 27·0 (−2·8) |
| Relative humidity (%) | 71 | 52 | 50 | 57 | 76 | 81 | 79 | 89 |
| Wind direction and speed .. | Calm | South, 2 Kts. | Calm | Calm | Calm | Calm | Calm | Calm |
| Visibility: Yards .. (Metres) | 1,100 (1,008) | 660 (604) | 80 (73) | 660 (604) | 70 (64) | 220 (201) | 660 (604) | 330 (302) |

Smoke fog formed around midday and persisted, visibility varying between 70 and 700 yards (64 and 640 metres).

No. 1 filter. The density of the smoke stains was assessed by reflectometer, using the same calibration as for the standard method. Further smoke samples were collected with a high-volume sampler, in which air is drawn at about 45 cu. ft. (1.27 cubic metres) a minute through a filter paper made entirely of very fine glass fibre. Additional measurements of sulphur dioxide were made using a modification (Kirkham, 1954) of the fuchsin-formaldehyde method described by Steigmann (1942). A thermal precipitator and a cascade impactor having a membrane filter as a fifth stage were used to obtain samples for microscopical examination.

## Results

The variation in smoke and sulphur dioxide observed during the episode is shown in Fig. 1. Between 2 and 4 p.m. the concentration of smoke increased tenfold, and another rapid rise occurred between 6 and 8 p.m., reaching a maximum figure of 6.5 mg. per cubic metre. The variation in sulphur dioxide was less marked, but the concentration reached a maximum level of 1 p.p.m.

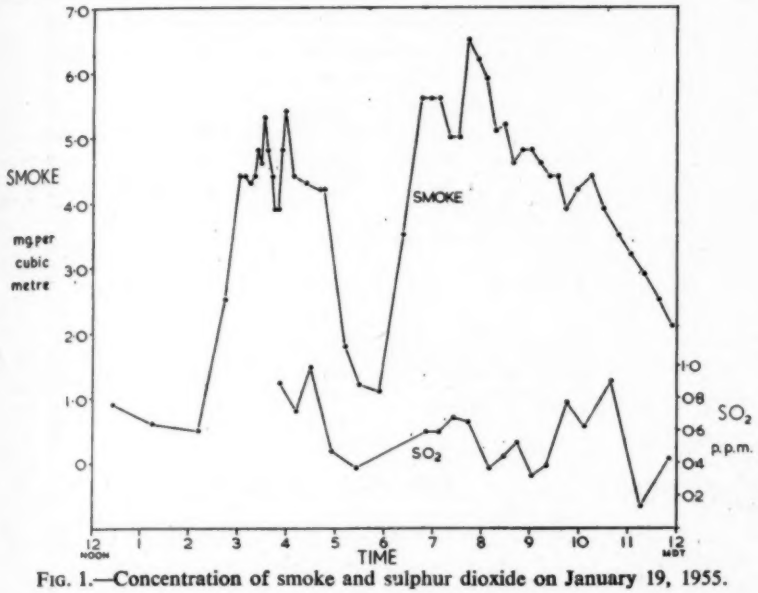


FIG. 1.—Concentration of smoke and sulphur dioxide on January 19, 1955.

It is possible to draw up a rough comparison between the three methods used for determining smoke concentration, and between the two used for the determination of sulphur dioxide, and Table II shows that there is fairly close agreement.

TABLE II.—*Concentration of Smoke and Sulphur Dioxide on January 19/20, 1955. Comparison of Methods*

| Period* | Smoke Concentration, mg. per cubic metre | | | Sulphur Dioxide, p.p.m. | |
|---|---|---|---|---|---|
| | Standard D.S.I.R. Method | Short-period Filter Paper | High-volume Sampler | Standard D.S.I.R. Method | Short-period Colorimetric |
| 11.30 a.m.–4 p.m. | 1·35 | 1·94 | — | 0·44 | — |
| 4–7 p.m. .. | 3·98 | 3·18 | 3·58 | 0·66 | 0·63 |
| 7–10 „ .. | 5·42 | 5·08 | 5·70 | 0·66 | 0·52 |
| 10p.m.–10.30a.m. | 1·27 | — | — | 0·52 | — |

* The periods quoted here refer to those for the standard D.S.I.R. method. Those for the other two methods are similar, but the terminal times differ slightly in some cases.

Microscopical examination of thermal precipitator and cascade impactor samples showed that the suspended matter consisted almost entirely of black smoke particles. The concentration of particles under 0.32 $\mu$ which could be counted under the light microscope increased in proportion with the measured smoke concentration. Although it was not possible at that time to obtain a detailed mass distribution, it appeared that most of the mass consisted of particles of less than 1 $\mu$ diameter. No water droplets were observed, and no sulphuric acid was detected in washings from impactor slides, although it is possible that any present in extremely fine droplets may have escaped collection.

The smoke collected on the plates of an electrostatic precipitator used here for air-conditioning (see below) contained 44% tarry matter soluble in acetone, and 7% incombustible ash. These figures do not differ greatly from those for other midwinter samples.

## Clinical Observations

In parallel with our work on the physical and chemical nature of pollution, an assessment is being made of the clinical status of a series of patients with an established diagnosis of chronic bronchitis and emphysema who regularly attend a special clinic and who are subjected to periodic pulmonary function tests. The majority of these patients have been observed for five years. In October, 1954, they were given diaries in which they were asked to record their own assessment of their state of health day by day by means of a simple code. The code was as follows :

A. Condition better than usual.
B. Condition the same as usual.
C. Condition worse than usual.
D. Condition much worse than usual.
F. Fog some time during the day.
X. I have a cold.

Diary entries from 29 patients were available for the week including January 19, 1955, and Fig. 2 shows the number reporting either a deterioration or improvement in condition on each of seven days around January 19, as compared with the previous day. Relative humidity (mean of eight three-hourly readings), temperature (mean of day maximum and night minimum), and concentrations of smoke and sulphur dioxide (24- or 48-hour periods) are also shown.

It can be seen that a clinical deterioration in the condition of some patients coincided with the smoke "fog" on the 19th. It has not been possible to determine just how many of the 29 patients encountered any of the "smoke pockets" during the day, and so no reliable estimate can be made of the proportion affected amongst the total exposed. It was not unduly cold that day, nor was the relative humidity high.

It is also worth noting that exceptional weather conditions had been experienced in the London area during the week-end of January 15 to 16. The frozen snow which had been on the ground for several days began to melt during the afternoon of the 15th, and continued to thaw rapidly overnight. Slight fog had also been reported on the 15th, persisting throughout the day in some parts. On the 16th a cloud of smoke passed over London during the early afternoon, producing complete darkness for a period of about 10 minutes. This was followed by a sudden drop in temperature. It can be seen from Fig. 2 that several patients reported a deterioration in condition on the 16th. No detailed measurements of smoke were in progress during this brief interval, but there is no evidence to suggest that the smoke concentration near ground level was seriously affected when the smoke cloud passed over.

Whilst it is realized that the number of patients whose condition deteriorated on the 19th is not spectacular, these results, taken in conjunction with clinical impressions reported by physicians seeing out-patients in this and another hospital, leave no doubt in our minds that this smoke was deleterious. The effects noted included exacerbations of chronic bronchitis, the occurrence of bronchospasm, and, in one case, a marked alteration in the character of the sputum, from mucoid to frankly purulent.

One patient, with chronic bronchitis, emphysema, and cor pulmonale, who was considered to be susceptible to smog, was removed to a single-bed room off the main ward,

equipped with a small electrostatic precipitator for removing particulate matter. The intake of this unit was in the main ward, and it can be seen from Table III that the smoke concentration there followed the outdoor level very closely, whilst in the air-conditioned room the concentration was 28% of that in the main ward.

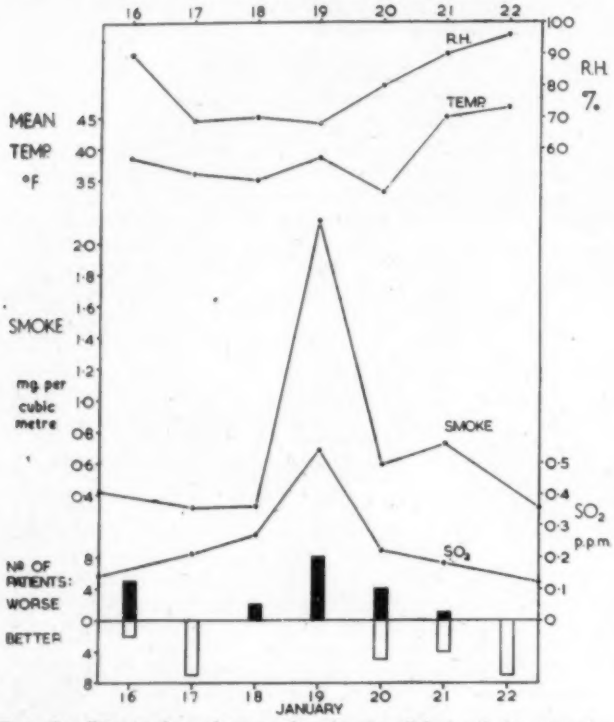


FIG. 2.—Day-to-day changes in the condition of 29 chronic bronchitics, and daily levels of pollution, temperature, and humidity.

TABLE III.—*Concentration of Smoke in Air-conditioned Room, January* 19/20

| Period | Smoke Concentration, mg. per Cubic Metre | | |
|---|---|---|---|
| | Outdoor | Main Ward | Air-conditioned Room |
| 4–10 p.m. .. .. | 4·70 | 4·69 | 1·31 |
| 10 p.m.–10.30 a.m. .. | 1·27 | 1·12 | 0·33 |

This reduction, which was sufficient to make the air noticeably clearer, might have been greater had it been possible to keep the door closed all the time. In addition, a simple device which recirculated the air through soda lime was started, to reduce the concentration of acid pollutants. The patient in this room showed no distress whatever, but we do not claim that this is significant.

### Discussion

The smoke "fog" reported here differed from ordinary London fog in that it was dry, and appeared to be free from sulphuric acid. It did, nevertheless, have a marked effect on some chronic bronchitics who were exposed to it. Its chief feature was the rapid variation in smoke concentration, and the very high peaks reached. It is worth considering this in relation to the London fog of December, 1952.

Observations of pollution at that time have been reported by Wilkins (1954), and an official report on the episode has been published (Ministry of Health, 1954). The maximum concentration of sulphur dioxide recorded was 1.34 p.p.m. (roof of County Hall, Westminster), and the corresponding smoke level was 4.46 mg. per cubic metre. These figures represented mean values over a 48-hour period. Little is known of the variation within that period, but hourly observations of smoke at Teddington—11 miles (17.7 km.) from Central London—show that the concentration remained constant for 24 hours during the middle of the fog period (E. T. Wilkins, personal communication to us). However, there was a marked peak at Teddington just before that, and it is possible that, in Central London, concentrations of smoke and sulphur dioxide were considerably above the 48-hour averages at some time during the episode.

### Summary and Conclusions

Visibility may be greatly reduced in London by smoke, in the absence of fog.

On January 19, 1955, very wide variations in the concentration of smoke were observed, and a tenfold increase occurred over a period of two hours. There was also an increase in sulphur dioxide, but no sulphuric acid was detected by the methods used, although traces might have been present in the form of minute droplets.

A temporary deterioration in the clinical condition of some patients with chronic bronchitis and emphysema coincided with this episode.

The results emphasize that measurements of pollution over 24- or 48-hour periods do not necessarily indicate the hazard to which the population may be exposed.

We are indebted to Professor Ronald V. Christie for his encouragement and valuable criticism. Technical assistance during the course of this work has been given by Mrs. M. M. Austin. The high-volume sampler has been made available through the kindness of the U.S. Public Health Service.

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# CHRONIC PERIONYCHIA

## AETIOLOGY AND TREATMENT

BY

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Chronic perionychia is a painful and disfiguring condition, and is frequently difficult to cure. One's impression in a dermatological out-patient department is that it is becoming more common, but this may only be because sufferers are now more prepared to seek a specialist's opinion. The condition is only briefly dealt with in many dermatological textbooks, though some contain more adequate accounts—for example, Ormsby and Montgomery (1948) and Ingram and Brain (1955). Surgical textbooks rarely deal with the fundamental aetiology, and usually advocate mutilating surgical procedures which are unnecessary and unsatisfactory. Thus Handfield-Jones and Porritt (1948) state: "Treatment in the early stages consists in an incision in the skin at the site of the infection to expose the nail-root on that side and a small segment is removed. When the infection has spread around the nail, two parallel cuts are made so that a flap of skin can be dissected off the nail-root."

In my experience many of these patients are not properly treated, and this has led me to describe some general lines of treatment—which, though not original, have on the whole been fairly successful—in the hope that they may be helpful to practitioners generally.

Chronic perionychia may be secondary to some systemic condition, such as syringomyelia or Raynaud's disease, or associated with a chronic eczema of the

fingers, when the treatment is essentially that of the underlying condition, and as such is not considered here. The following discussion is limited to those patients who develop perionychia as a primary and isolated phenomenon affecting one or more fingers. The figures quoted are based on 100 patients (6 males and 94 females), half of whom were private patients and half seen in the out-patient department.

The Table shows that chronic perionychia is most common in middle life. Occupation has an

*Age Incidence*

| Age in years .. | 0–10 | 11–20 | 21–30 | 31–40 | 41–50 | 51–60 | 61–70 | 71–80 |
|---|---|---|---|---|---|---|---|---|
| No. of cases .. | 2 | 1 | 10 | 20 | 34 | 23 | 9 | 1 |

important influence on the condition. The following is a list of those most often involved: Housewives and domestic servants (66), hospital nurses (5), barmaids (3), café workers (3), varied shop assistants (6), typists (2), laundress (1), fruit packer (1), masseuse (1), and other single examples. The six men were a dentist, an engineer, a cement worker, a cabinet maker, a butcher, and a commercial traveller. The figures may be subject to some inaccuracy, as many women, and probably some men, do housework in addition to their ordinary work.

### Clinical Picture; Diagnosis

The most characteristic feature is redness and swelling or "bolstering" of the nail-fold at the base and often round the sides of the nail, which in severe cases may almost give the distal phalanx a drumstick appearance. The nail-fold is separated from the nail instead of being firmly adherent as normally, and a little pouch is thus formed into which a chisel-shaped orange stick can be introduced a considerable distance. The swollen nail-fold is usually tender, and even when it is not actually painful it is liable to recurrent exacerbation of extreme tenderness. At times an acute flare-up may be associated with lymphangitis and adenitis. The pocket under the nail-fold sometimes exudes pus on pressure, especially during exacerbations, but in some cases no pus is ever seen. The nails are often distorted, and may be ridged transversely, irregular, and somewhat discoloured, though they do not show the yellowish-white opacity so typical of fungus infection. Only very rarely does chronic perionychia give rise to a deep infection of the distal phalanx, but when this occurs surgical treatment is obviously indicated.

The diagnosis is usually obvious, but a common mistake is to diagnose the condition as a fungus infection because of the dystrophic appearance of the nail. This is a serious mistake, because ringworm of the nail can be cured only—and then not for certain—by removing the nail, whilst the nail changes in perionychia are only secondary and will clear up once the primary lesion is cured. Ringworm infection rarely affects the nail-fold and does not produce bolstering or a pocket under the nail-fold; it causes a more definite opacity of the nail, often quite well defined, and the nail may be more friable than in perionychia. The finding of mycelium in a scraping from the nail is the ultimate test. Whether *Candida* (monilia) causes perionychia or is only a secondary invader is still uncertain; even if it does cause it, the lesion should be treated like an ordinary perionychia and not like a fungus infection of the nail. Occasionally perionychia may be due to specific infections such as syphilis or be secondary to syringomyelia; but here the whole distal phalanx is involved and the lesion not limited to the nail-fold, and the differential diagnosis should not be difficult. I have at times seen an exostosis mistaken for a perionychia and also a rare condition called acrodermatitis continua, in which redness, scaling, and tiny intra-epidermal pustules may start round the nail, ultimately leading to some loss of tissue.

### Aetiology

Although perionychia is due to an infection, the soil is much more important than the seed, for bacteriological investigation reveals no constant flora, but a variety of organisms, including staphylococci, streptococci, coliform bacilli, and other micro-organisms which may be non-pathogenic, including *Candida albicans*, and it is not possible to distinguish one infection from another on clinical grounds. It may be significant that one patient who gave a profuse growth of candida was a diabetic. Some patients seem prone to perionychia irrespective of their work, and some of mine have a history of persistent or recurrent attacks for 15 years or more. One woman had had attacks at the ages of 30, 52, 58, and 60. One gets the impression that many of these patients have some vascular abnormality in the form of either chilblains or "dead fingers." In my series such changes were recorded as present in 45 patients and as absent in 13, and were not recorded in 42; this is suggestive but not necessarily significant, though it may be a pointer towards treatment in difficult cases.

As mentioned above, occupation plays a most important aetiological part, at least 80% of the patients being employed in work involving constant exposure to water and often also to detergents. Other facts which emerged were the frequent association with sepsis elsewhere in the form of boils or an aural abscess, or merely a history of "always going septic"; though whether these lesions were primary or secondary to the perionychia was not always easy to determine. Occasionally the condition was familial. The immediate onset was sometimes the direct result of trauma, as from a rose thorn or a manicure, whilst at others it seemed to follow some depression of the patient's general condition such as pregnancy or anaemia.

### Treatment

I would condemn surgical incisions and removal of nails as being unnecessary and often, by themselves, unsuccessful; also the use of antibiotics is rarely helpful—except occasionally in acute flares, especially if associated with lymphangitis—is expensive, and is attended by all the disadvantages of unnecessary antibiotic therapy. The aim of treatment is (1) to remove predisposing factors by keeping the fingers dry; (2) to sterilize the pocket under the nail-fold; (3) to restore the anatomical contour so that the nail-fold can once again become adherent to the nail; and (4) if possible to improve the circulation in the fingers.

To achieve the first object may be easy if the patient can obtain domestic help or move into a residential hotel, but usually such solutions are not feasible. Exposure can be reduced by changing to an electric washing-machine and by using a mop, preferably of the sponge type mounted on a steel handle, for washing up. Ordinary rubber gloves or, for single nails, finger-stalls, may help, but frequently women cannot endure the rubber, or they find that sweating causes maceration under the gloves. Powdering may help this, but cotton gloves inside the rubber ones are better, though many women find two pairs of gloves a nuisance and prefer a lined rubber glove such as the "marigold" or "glovelies" type. Others prefer "plastic mits" which allow free movement of the fingers. Even with these precautions, great care must be taken always to dry the hands carefully immediately after exposure to water, even if only for personal washing. Attention should be paid to the patient's general condition and any anaemia and any source of sepsis such as pyorrhoea dealt with. An attempt should be made to improve the local circulation, and for this purpose I have found tolazoline hydrochloride, 25 mg. three times a day, most useful, though at times I have obtained benefit from thyroid. Unnecessary exposure to cold should obviously be avoided, and occasionally a change of job is indicated.

### Local Treatment

The first objective is to sterilize the pouch under the nail-fold; this is done by pushing in a wisp of cotton-wool

soaked in pure phenol by means of a chisel-shaped orange stick and leaving it there for a minute after wiping off the excess. This can be repeated at weekly intervals for two or three weeks. Every night the patient should paint round the affected nail-fold with some antiseptic in spirit or acetone so that it will penetrate into the pocket; it is obvious that an ointment is useless for this purpose, though there is a stage, as mentioned below, where it may have a place. Every dermatologist has his own favourite antiseptic application, and in my opinion the most effective is:

| | | | | |
|---|---|---|---|---|
| Mercuric chloride | .. | .. | .. | ½% |
| Brilliant green | .. | .. | .. | ½% |
| Industrial spirit | .. | .. | .. | 99% |

The disadvantage of this substance is its vivid colour, but many patients are quite prepared to put up with this if it does them good. A less conspicuous and nearly as effective antiseptic is tincture of merthiolate, and recently I have been using the following, which is colourless and is active against candida as well as ordinary bacteria: domiphen bromide ("bradosol") (1 in 500) in 75% spirit.

While the above treatment will cure many cases there is no doubt that better results are obtained if it is assisted by a course of superficial radiotherapy. Why this works so well it is difficult to say, as the doses given, 100–150 r, have no action on the invading bacteria; I believe the effect is produced largely by diminishing the inflammatory reaction so that the nail-fold returns to its normal anatomical state and also possibly by removing obstruction to the lymph flow by inflammatory products.

A striking example of the benefit of *x* rays was shown in the following remarkable case.

A girl aged 6 was brought to me with a history from 6 months old of recurrent septic lesions starting at the base of the nails as a red glossy swelling which frequently oozed pus. Every nail except that of the left little finger had been involved one or more times, though not necessarily all together. She had been thoroughly overhauled elsewhere and had had a tonsillectomy two years previously without benefit. The only relevant detail in the family history was a history of eczema in the father. All simple forms of treatment had had no effect, but lesions were said invariably to clear up after *x*-ray treatment. When I examined her she had typical perionychia of the right index and little fingers and the left thumb. There was no evidence of any abnormality such as epidermolysis bullosa. Bacterial investigation showed a *Staphylococcus aureus* sensitive to all antibiotics except penicillin. Careful investigation for septic foci, including *x*-ray examination of her sinuses, was negative. Ordinary treatment, including chlortetracycline ointment, produced no improvement, but after I had found out how much radiation she had had, I gave her three fractional doses at monthly intervals, and since then she has remained clear for six months. I have no explanation for this child's extraordinary susceptibility, but she is a witness to the remarkable effect of *x* rays.

When the pocket at the base of the nail has been made sterile and the swelling of the nail-fold has been flattened, it is important to prevent further reinfection before the nail-fold has become firmly adherent to the nail again. This can often be helped by applying "portex" plastic skin to the base of the nail so as to seal the space between the nail and the nail-fold. It will have to be reapplied every two or three days. An alternative, though less satisfactory, method is to apply an antiseptic ointment with a water-immiscible base such as soft paraffin—for example:

| | | | |
|---|---|---|---|
| Ammoniated mercury | .. | .. | 10 gr. (0.65 g.) |
| Soft paraffin | .. | .. .. to | 1 oz. (31 g.) |

[not the ordinary *National Formulary* ointment, because this has a water-miscible base]

This ointment should be lightly massaged into the nail-fold so as to occlude the pocket. Finally, even when the nails are back to normal the patient must continue to take reasonable precautions, otherwise there is a considerable chance of a relapse. One useful measure is to apply regularly a waterproof barrier cream round all the nails before doing any wet work.


## Summary

The incidence of chronic perionychia is reported and the aetiology discussed.

Curative and preventive measures are described.



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# DIAGNOSIS AND TREATMENT OF PEMPHIGOID

## REPORT ON 22 CASES


BY

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Pemphigus has achieved a notoriety out of proportion to its incidence because it is one of the few fatal skin diseases. The label of pemphigus was at one time given to any chronic bullous eruption occurring in later life, but the whole conception of the disease has been altered by the observation of histological differences between the bullae formed in pemphigus and those of other blistering eruptions (Civatte, 1943). Once Civatte's histological method of diagnosis was confirmed (Rook and Whimster, 1950), it became possible to note differences between the clinical picture in pemphigus and the disease which had previously been grouped with it and which is now known as pemphigoid (Lever, 1953; Rook and Waddington, 1953; Church, 1953).

The differentiation is of more than academic importance, as the prognosis of the diseases differs. One of the most important differences is in the age groups affected; pemphigus vulgaris predominantly occurs in middle age, but pemphigoid is a disease of old age. With increasing longevity pemphigoid, like other diseases of old age, seems to be becoming more common. Recent advances in treatment of the disease with corticotrophin (A.C.T.H.) and cortisone have improved the prospects of recovery, but early recognition and treatment are important, since many patients become bedridden and die as the result of this rather than of their skin eruption.

### Clinical Features

We describe below the clinical features of pemphigoid as they have been observed by us in 22 cases. We believe that in the great majority of cases a diagnosis of pemphigoid can be made on clinical grounds alone, and this can be confirmed histologically.

Most patients with pemphigoid are over 70; the oldest we have encountered was aged 89. They may be in good health at the time of onset, but a significant number, even when age is taken into consideration, suffer from some chronic illness which causes them to be bedridden. Malignant disease has been said to be an associated illness, but did not occur in our series of cases.

Pemphigoid commonly starts with a non-specific rash on the limbs that may be urticarial or, occasionally, eczematous.

When urticarial this stage lasts one to three weeks before bulla formation occurs, but when eczematous the blisters may not appear for two to three months. As Rook and Waddington (1953) have pointed out, some cases start with a localized group of blisters, which may persist for several weeks and present a diagnostic problem to those unfamiliar with the subsequent course of the disease. These "primary lesions" often occur at the site of some existing skin injury such as a gravitational ulcer. We have also seen the first blisters on the scar of a cicatricial alopecia, on the scar of burns, and, more than once, around the umbilicus. If the patient is fortunate and survives the generalization of the rash, the primary area often continues to blister when the rest of the skin has healed.

Sudden generalization of the true eruption of pemphigoid follows these prodromal eruptions and most of the body is affected within a week. Severe irritation may precede the eruption. At first areas of dusky raised erythema appear, bearing an ominous resemblance in tint to post-mortem

Characteristic pemphigoid eruption showing discoid erythematous plaques with superimposed blisters. (Case 8.)

livido. Blisters soon follow on both erythematous and apparently normal skin and sometimes form a gyrate pattern at the edges of the zones of erythema (see Illustration). The blisters are tense and dome-shaped, and vary in size from vesicles to large bullae 2–3 in. (5–7 cm.) across. Their contents are usually clear serum, but occasionally are blood-stained. Though large, the blisters are remarkably tough and may remain intact for several days, and occasionally the serum coagulates. In some blisters the serum is absorbed, so that the epidermis settles back in place like a skin graft, but the majority rupture and form erosions which crust and heal with remarkable speed, leaving a pigmented stain.

Mucosal lesions consisting of blisters and discrete erosions are usually confined to the oral mucosa, which is affected in more than half the cases, but usually after the generalized eruption has appeared. The mouth lesions are rarely severe, and, like the erosions on the skin, heal fairly readily. The illness is usually accompanied by a leucocytosis with a variable increase in the eosinophil count, which is of little diagnostic significance. A fever is unusual, but this may be due to the tendency for the aged to remain apyrexial in what would be a febrile illness in a younger subject.

The eruption of blisters and erythematous areas is cyclical and the interval between fresh crops of blisters varies from a few days to two or three weeks. The periods of quiescence may therefore raise false hopes of therapeutic success.

The course of the disease is very variable: some cases undergo spontaneous remission, while others seem to remit as a result of treatment. A fatal termination is not uncommon, the cause of death usually being bronchopneumonia. A complication which predisposes to this is generalized oedema, a result of loss of plasma proteins through the eroded skin. Confirmation of the diagnosis of pemphigoid can be obtained by biopsy of one of the early small blisters.

The bulla of pemphigoid is subepidermal, the entire epidermis being torn off the papillary bodies and lifted into a dome by the outpouring of serum which accumulates in the cavity. The bulla is always rounded or pear-shaped, and under tension the surrounding cells are flattened into lamellae but retain a living structure with intact prickles; the lateral walls are concave and solid and do not permit fissuring. Usually the cavity is single, though there may be an appearance of loculation due to fibrous tracts or fusion with neighbouring bullae. The wrenching off of the epidermis breaks sweat ducts, tears off the tip of interpapillary buds, leaving them implanted between papillae, and stretches the collar of hair follicles. In large bullae the raised epidermis becomes thinned and sometimes necrotic. The floor of the bulla is formed by oedematous papillary bodies, and the extent of the infiltrate varies but is proportional to that in the bulla fluid and the subadjacent dermis. The number of eosinophils varies in proportion to those in the circulating blood (Civatte, 1936, 1943; Lapière *et al.*, 1946).

## Differential Diagnosis

### Pemphigus Vulgaris

This disease is rare compared with pemphigoid. It usually attacks those in middle age and in previously good health, though it may occasionally be seen in the later decades of life. The onset is insidious, and the first lesions usually affect the buccal mucosa; here the blisters break so rapidly that it is unusual to see intact lesions, and the patient presents with painful superficial erosions which resist treatment and may persist for many months or even a year before the disease reveals itself further. The essential lesions of pemphigus are the bullae arising from apparently normal skin and unaccompanied by the erythematous areas which occur in pemphigoid. Unlike the blisters in pemphigoid, the pemphigus lesions are small and flaccid, and rupture rapidly, so that even when the skin is extensively involved it may not be possible to find any intact blisters at any particular time. The erosions resulting from rupture of the bullae remain indolent, or extend by undermining the peripheral skin, so that large areas of the trunk become denuded of skin. The resultant clinical picture is in distinct contrast to the pemphigoid sufferer, whose erosions heal rapidly and who may be covered with large intact blisters. However, there are a few cases in which it is difficult to differentiate on clinical signs alone, and in these the histology of the bulla provides the diagnosis.

*Histology.*—The bulla in pemphigus vulgaris is formed by the hollowing out of a cavity in the thickness of the prickle-cell layer of the epidermis after a split has been formed by degeneration of the prickle cells. This degeneration is called acantholysis and is the elementary lesion of pemphigus (Civatte, 1936, 1943); essentially, the process consists of degeneration, ballooning, and ultimate fragmentation of the nucleus and loss of prickles and intercellular protoplasmic filaments, so that the affected cells become spherical and detached. The site of the bulla in the epidermis varies; it usually arises about the middle layer, but it may arise deep down immediately above the basal layer. The basal layer remains adherent to the papillary bodies and forms the base of the cavity. The cavity terminates at an acute angle, sometimes in a fissure with ill-defined lateral borders; and the adjacent cells, not being under pressure, remain rounded. The cellular infiltrate in the bulla varies from a few lymphocytes and histiocytes to a dense polymorphonuclear leucocytic infiltrate with a variable proportion of eosinophils. A few detached acantholytic cells are found in all pemphigus bullae. The dermal infiltrate varies and is similar in degree to that in the bulla.

The infallibility of the histological differentiation between pemphigus and pemphigoid has not been accepted by all

dermatologists. Hellier (1954) has reported one case of pemphigus vulgaris in which subepidermal bullae and intra-epidermal bullae with acantholysis were found in different phases of the disease; while Prakken and Woerdeman (1955) found both types of bullae present simultaneously in two cases. Many of our patients had more than one biopsy performed, and in all the cases of pemphigus and pemphigoid which we have treated the histology has been true to type.

### Other Eruptions

Dermatitis herpetiformis and erythema multiforme may need to be considered in the diagnosis. Dermatitis herpetiformis is uncommon in old age and can be excluded by its specific response to sulphapyridine or diaminodiphenyl sulphone therapy. Erythema multiforme is an acute eruption which resolves in less than two weeks, and, although the eruption of bullae and erythema may resemble pemphigoid, its duration is diagnostic.

## Present Study

The accompanying Table shows the main features of the 22 cases of our series. It will be seen that the sexes are affected equally. The age range was from 59 to 89, the average being 76. In half the cases the oral mucosa was involved, but this occurred in several of the cases which recovered and was not necessarily a bad prognostic feature.

One histological finding in this series was invariably a subepidermal bulla with no evidence of acantholysis. The site of origin of the disease was more often on the limbs than on the trunk.

### Mode of Onset

We describe below two short histories of cases which appear in the table to illustrate the variable mode of onset.

*Case 4.*—A retired schoolmaster aged 79 complained of an itching eruption on the arms and legs of three weeks' duration. The itching was so intense that he was unable to sleep. On examination an eczematous eruption was found on the forearms and legs, and he was treated with local applications of a tar ointment. The itching decreased and the eczematous eruption subsided for two months. Then quite suddenly dusky figurate areas of raised erythema appeared on the trunk and limbs. Tense discrete bullae erupted on the erythematous areas, and within a week he was covered with bullae up to 3 cm. in diameter.

*Case 5.*—A man aged 65 accidentally spilt hydrofluoric acid on his left leg. He cleaned the acid off immediately with water, but a superficial burn developed. Several days later he developed an irritating rash around the burnt area, and two to three weeks later blisters appeared on the right leg and the arms. This eruption, which was first diagnosed as dermatitis herpetiformis, was not improved by sulphapyridine and Fowler's solution, and he was admitted to hospital two months after the onset of the eruption. On examination there was a confluent area of scaly erythema on the left leg with superficial ulceration around the ankle. Numerous haemorrhagic bullae varying in size from 1 to 3 cm. were present on the right foot and leg, the thighs, and forearms. Healing erosions and pigmented stains of healed bullae could be seen. The histological picture was of a subepidermal bulla.

## Treatment

It is difficult to assess the results of treatment of a disease such as pemphigoid, which undergoes spontaneous remissions, and it is still more difficult because those over the age of 70 are affected. Any disease severe enough to warrant a lengthy stay in bed at that age will produce casualties from stasis pneumonia and thrombophlebitis.

Before the era of the corticosteroids, patients with pemphigoid did recover: in our own series, 4 out of 11 had a satisfactory remission. Various drugs were used, but none of the early treatments proved reliable.

Suramin ("antrypol") has been used for many years in the treatment of pemphigus, including pemphigoid, and most dermatologists have seen cases recover after its use. It appeared to benefit three of the four cases which recovered, but it is unreliable, and is, moreover, a toxic preparation.

Chlortetracycline controls the blistering in some cases of pemphigoid—this is shown when cessation of its use is followed by a severe exacerbation—but it is not effective in all cases, and many patients cannot tolerate the high dosage necessary to control the blisters. Other forms of treatment such as sulphapyridine and liquor arsenicalis have been completely ineffective in our hands, though Rook and Waddington thought that liquor arsenicalis was of value.

The discovery that cortisone and corticosteroids were capable of suppressing blister formation in pemphigus and pemphigoid was a step forward, and the prognosis of pemphigus has improved immensely with their use. We have now treated 11 cases of pemphigoid with either corticotrophin or cortisone, and, despite the average age of 77.7, seven are alive and well, though all but one are receiving a maintenance dose of corticotrophin or cortisone.

This contrasts with 4 survivals from 11 cases, average age 74.5, treated before corticotrophin became available. The natural history of the disease is so variable and our figures are so small that the apparent improvement in mortality figures is well within the bounds of chance. There are, however, considerable advantages in the treatment with steroids. The formation of new blisters is suppressed quickly and in

*Summary of Cases*

| Case No. | Sex | Age | Original Site | Mouth Involved | Histology | Treatment | Present State | Duration of Follow-up (Months) | Cause of Death. Found at Necropsy |
|---|---|---|---|---|---|---|---|---|---|
| 1 | M | 79 | Forearm | No | Not done | Corticotrophin and cortisone | Well | 12 | |
| 2 | F | 75 | Scalp | Yes | Subepidermal blister | " " | " | 18 | |
| 3 | F | 73 | Ears and legs | No | " " | Corticotrophin | " | 24 | |
| 4 | M | 79 | Arms and legs | " | " " | " | Dead | | Hypostatic pneumonia |
| 5 | M | 65 | Left leg | Yes | " " | " | " | | Bronchopneumonia. Cirrhosis of liver |
| 6 | M | 75 | Umbilicus | No | " " | " | Well | 18 | |
| 7 | M | 84 | Legs | " | Not done | " | Dead | | Pulmonary embolism |
| 8 | F | 70 | Scalp | Yes | Subepidermal blister | Corticotrophin and cortisone | " | | Superior mesenteric artery thrombosis |
| 9 | M | 86 | Legs | No | " " | Corticotrophin | Well | 12 | |
| 10 | M | 86 | | " | " " | " | " | 3 | |
| 11 | F | 80 | Arms | " | Not done | " | " | 6 | |
| 12 | M | 78 | Back | Yes | Subepidermal blister | Sulphapyridine and penicillin | Dead | | Bronchopneumonia |
| 13 | F | 79 | Vulva | " | " " | Suramin | " | | Lobar pneumonia |
| 14 | M | 59 | Feet | " | " " | Chlortetracycline and suramin | Well | 9 | |
| 15 | F | 69 | Wrists | " | " " | Chlortetracycline | " | 10 | |
| 16 | F | 79 | Forearms | No | " " | " | Dead | | Cause unknown |
| 17 | F | 76 | Left arm | Yes | " " | Chloramphenicol | " | | Senility (necropsy not done) |
| 18 | M | 89 | Feet | " | " " | Chlortetracycline | " | | Bronchopneumonia. Cirrhosis of liver |
| 19 | F | 78 | Ankles | No | " " | Penicillin | " | | Bacterial endocarditis pyaemia |
| 20 | M | 87 | Forearms | " | " " | Suramin | Well | 24 | |
| 21 | F | 59 | Back | Yes | " " | " | " | 8 | |
| 22 | F | 67 | Breasts | No | " " | Chlortetracycline | Dead | | Cerebral thrombosis. Necropsy not done |

most cases improvement is maintained easily and the patient rapidly becomes ambulant. This eases the nursing problem and minimizes the risk of intercurrent disease. It also shortens the duration of stay in hospital, an important consideration in these days of long waiting-lists.

The dosage required to control the blister formation in the cases which have recovered has been remarkably small, the maintenance dose being as low as 20 mg. of corticotrophin gel on alternate days. Any reduction below this amount or increase of time between doses has led to a relapse, and we have been able to stop treatment in only one of the seven surviving cases. This very small dosage is strikingly different from the amounts necessary to control the blistering of pemphigus, though it must be admitted that in one fatal case blistering continued despite a daily dosage of 400 mg. of cortisone. It is our practice to start treatment with intramuscular corticotrophin gel 50 mg. on the first day and then 20 mg. twice daily. On this dosage in all but two cases, new blisters ceased and the dose could be reduced within a few days to 20 mg. daily and the patient discharged from hospital on a maintenance dose of 20 mg. on alternate days.

One feature which we have noted on several occasions is that if the dose is lowered too much and new blisters appear again, a high dose of corticotrophin may be necessary to control the disease once more. Incidentally a relapse may be forecast by premonitory plaques of erythema.

An antibiotic—usually chlortetracycline, as it may help also to control the blisters—is given to prevent the possibility of a lung and skin infection whilst the high dose of corticotrophin is being given, but the antibiotic can be stopped when the corticotrophin dose is lowered to 20 mg. daily or less, and we have seen no serious intercurrent infection in the patients who have been living their normal lives at home on maintenance therapy. While the larger doses of corticotrophin were necessary, a low-salt diet and added potassium (1 g. three times a day) were given to prevent electrolyte imbalance, but these were stopped when the low maintenance dose was reached.

Where possible, the patient has been taught to give his own injections before discharge home, but in some of the very old patients it has been necessary to train a relative, or request the help of the district nurse.

### Case Histories Showing the Effect of Corticotrophin

*Case 6.*—A man aged 75 was admitted to hospital with a widespread pemphigoid eruption of three weeks' duration. There was no response to chlortetracycline and suramin. Corticotrophin gel, 20 mg. daily, was sufficient to control the eruption, and the maintenance dose was 20 mg. on alternate days. He had no blisters for one year.

*Case 9.*—A man aged 86 was admitted to hospital in September, 1952, with a generalized pemphigoid eruption of one month's duration and a large gravitational ulcer which had been present for 30 years. He was treated with soluble corticotrophin rather irregularly owing to shortage of supplies, and after nine weeks he was discharged home apparently in a remission. It was noticeable that when corticotrophin was stopped for three or four days on several occasions the blisters recurred, but ultimately cessation of corticotrophin was not followed by a relapse. He remained well until June, 1954, when he was readmitted with a generalized pemphigoid eruption. The eruption again responded to soluble corticotrophin, and he was discharged home after eight weeks to have a maintenance dose of 15 mg. of soluble corticotrophin daily. He ceased to attend the follow-up clinic in October, and then ran out of corticotrophin. He was readmitted to hospital in December, with extensive bullae over the legs, back, and trunk. Within a month the condition was once more controlled with corticotrophin, though on this occasion corticotrophin gel in a dose of 30 mg. daily was necessary. He was discharged on a maintenance dose of 20 mg. of corticotrophin gel daily and he has so far remained free of blisters.

Case 9 illustrates the relative ease with which the condition can be controlled with quite low doses of corticotrophin, but shows that failure to maintain the treatment was followed by relapse.

### Failures

One man aged 84 died three days after admission to hospital of pulmonary embolism and after only three days on corticotrophin. He had been bedridden for some weeks at home, and one could ascribe his death to embolism from thrombophlebitis of the veins of the legs or pelvis. We were disturbed, however, by the death of another patient, a woman of 70 whose eruption had not been controlled by corticotrophin or cortisone, which was substituted after a low ketogenic steroid output had suggested inadequate suprarenal response. She also died of an acute superior mesenteric thrombosis.

One might ascribe both these deaths to natural events unrelated to treatment, but we have also had two other patients with different skin diseases on corticosteroids who have died of pulmonary emboli, and we feel that there may be an increased risk of this complication in elderly patients on long-continued and high dosage of corticosteroids. This risk has already been pointed out by Cosgriff (1951).

The other two fatalities were due to bronchopneumonia, unrelated, so far as we could determine, to the treatment with corticosteroids.

Only 2 of our 11 steroid-treated cases did not respond to treatment. One continued to develop blisters despite a daily dosage of 75 mg. of soluble corticotrophin and died of bronchopneumonia; the other was the woman who died of superior mesenteric thrombosis, but whose eruption was not controlled with 400 mg. of cortisone daily.

Despite the disadvantages, it is our opinion that treatment with corticotrophin and cortisone is the method of choice in pemphigoid and should be instituted as soon as possible after the onset of the disease.

### Summary

The clinical features of pemphigoid based on a study of 22 cases are described and the differential diagnosis is discussed.

The results of treatment of 11 cases with corticotrophin (A.C.T.H.) and cortisone are reported, and are contrasted with the treatment of 11 cases before the steroids became available.

Seven of the 11 cases treated with corticotrophin and cortisone survive, though all but one require maintenance therapy. Despite the advantages of this form of treatment, an increased risk of death due to thrombophlebitis and embolism is a possibility, and the disease itself was not controlled in two cases.

We are grateful to the Regius Professor of Physic in the University of Cambridge for permission to publish material from the M.D. thesis of one of us (R. C.) and to Dr. C. H. Whittle and Dr. H. R. Vickers for kindly allowing us to quote cases observed under their care.

ADDENDUM.—Since this article was submitted three further cases of pemphigoid, in persons aged 65, 67, and 83, have been controlled successfully by cortisone alone. The maintenance dose in these cases ranges from 100 to 175 mg. daily.

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# THE PLACE OF OXYTOCIN IN LABOUR

BY

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Up to 1947 the use of pituitary extract in labour had been condemned by most obstetricians, but in that year Eastman reinvestigated the effects of the drug. He used ½ to 1 minim (0.15 to 0.30 unit) by intramuscular injection at half-hourly intervals, and reported excellent results in cases of inertia. Theobald *et al.* (1948) used the drug by the intravenous route, well diluted by isotonic saline and given by continuous infusion. They concluded that the drug was of great value when used in this way, and declared that the optimal dosage was in dilutions of between 1 in 5,000 and 1 in 10,000. About the same time Scadron (quoted by Stone, 1950) was using "pituitrin" by the intravenous route in dilutions of between 1 in 500 and 1 in 750 and reported excellent results. This dosage Theobald *et al.* would condemn as dangerous. Hellman *et al.* (1950), using a dilution of 1 in 1,500, confirmed the value of the intravenous route in the administration of pituitary extract in labour, and subsequent workers agree. Recent work by du Vigneaud (1954) has shown that oxytocin is a safer and more effective drug than whole pituitary extract.

There is still a measure of disagreement, however, about the proper indications for the use of oxytocin in labour, and the best and safest dosage to use. In this paper the use of intravenous oxytocin ("pitocin") in labour is discussed, and the indications are summarized in Table I.

TABLE I.—*Indications for Use of Intravenous Oxytocin in* 100 *Cases Treated*

| Indication | No. of Cases |
|---|---|
| Failure of labour to ensue after amniotomy | 60 |
| Induction on account of toxaemia | 31 |
| " " " " maturity | 20 |
| " " " " intrauterine death | 5 |
| " " " " oedema | 3 |
| " " " " maternal distress | 1 |
| Failure of labour to ensue after spontaneous rupture of membranes | 13 |
| Selected cases of ante-partum haemorrhage | 7 |
| Hypotonic uterine inertia | 20 |

(This is an incidence of 1% of all deliveries in the hospital during the period under review)

## Indications for Use of Intravenous Oxytocin

### Failure of Labour to Ensue after Amniotomy

The indications for the surgical induction of labour have been widened considerably in this hospital in the past 27 months. Out of 9,800 deliveries, 410 patients have had labour induced by amniotomy, usually by high puncture of the membranes, using the Drew–Smythe catheter. Of these labours, 42% were induced on account of toxaemia of pregnancy, 35% on account of maturity, 7% on account of ante-partum haemorrhage, and the remaining 16% for a variety of reasons. Of these patients, 68% were delivered within 24 hours and 92.8% within 48 hours, but 14.5% required the use of intravenous oxytocin to bring about delivery in this time.

In general, intravenous oxytocin drip was not used until an interval of 24 hours had elapsed after amniotomy. The reason for this delay is based on Reynolds's (1949) view that one of the causes of the onset of labour is a change in the tension of the myometrium. If amniotomy is performed the tension within the uterus is altered, and time should be allowed for this factor to become effective. I regard 24 hours as a convenient time, for more than 80% of the patients will be in labour by then, no matter for what reason the amniotomy was made.

Cocks (1955) has shown the condition of the cervix to be of great importance in determining the rapidity and ease of delivery after amniotomy. This has been confirmed here, but cases are not divided into as many categories as in Cocks's series, the decision being made on the "feel" of the cervix alone. A cervix soft as the lips suggests that delivery will be rapid, one hard as the tip of the nose suggests a long interval between the induction and the onset of "pains," and a long tedious labour.

In certain cases of pre-eclampsia termination of the pregnancy must be considered despite an "unfavourable" cervix, for the danger to the foetus *in utero* may exceed the danger of premature birth.

While some of these patients will require immediate caesarean section (2.7% in this hospital), in others a "trial induction" may be decided upon. In the United States of America, Mauzy and Donnelly (1952) and Parker and Roberts (1954) have attempted to soften an unripe cervix by intravenous infusions of dilute oxytocin, and so to avoid caesarean section. Often these infusions have to be repeated over several days before the condition of the cervix has changed sufficiently to permit amniotomy, and the procedure must be frightening to the mother and dangerous to the baby, as it is left *in utero* and subjected to the effects of severe maternal toxaemia. Faris and Kahlenberg (1954) have also used intravenous oxytocin in an attempt to soften an unripe cervix. However, they limit the use of the drip to two consecutive days.

While there is a place for the use of intravenous oxytocin in this manner, it is a small one. In cases of toxaemia of pregnancy in which the cervix is found to be doubtfully ripe, and where delivery must be effected, the routine used here is to puncture the membranes. In some cases an intravenous oxytocin drip (1 in 5,000 dilution in 10% dextrose) is started at the time of amniotomy, but we usually delay 24 hours before using the drip (Table II). As the induction is only a trial we are prepared to terminate the pregnancy by caesarean section should the toxaemia worsen or should any other indication arise.

TABLE II.—*Use of Intravenous Oxytocin Drip in* 60 *Cases of Induction of Labour*

| Interval Before Use of Oxytocin | No. of Cases | Oxytocin–Delivery Interval | No. of Cases |
|---|---|---|---|
| Less than 12 hours | 13 | Less than 6 hours | 25 |
| 12 to 23 " | 6 | 6 to 11 " | 22 |
| 24 " 35 " | 21 | 12 " 17 " | 5 |
| 36 " 47 " | 13 | 18 " 23 " | 5 |
| 48 or more " | 7 | 24 or more " | 1 |
| | | Failure or caesarean | 2 |

In cases of amniotomy, dilute intravenous oxytocin used as described will reduce the induction–delivery interval if labour has not begun in 24 hours, but will avoid the discomfort and danger of routine oxytocin drip after surgical induction of labour.

### Failure of Labour to Ensue after Spontaneous Rupture of Membranes

Most patients with spontaneous rupture of the membranes will go into labour within 24 hours without additional stimulation, as has been emphasized by Embrey (1953), but in the others the use of dilute intravenous oxytocin is most effective (Table III).

TABLE III.—*Use of Intravenous Oxytocin Drip in* 13 *Cases of Spontaneous Rupture of Membranes*

| Interval Before Use of Oxytocin | No. of Cases | Oxytocin–Delivery Interval | No. of Cases |
|---|---|---|---|
| Less than 12 hours | 0 | Less than 6 hours | 8 |
| 12 to 23 " | 3 | 6 to 11 " | 4 |
| 24 " 35 " | 5 | 12 " 17 " | 1 |
| 36 " 47 " | 3 | | |
| 48 or more " | 2 | | |

Used in this way, the drug will reduce the danger to the foetus of continual drainage of liquor amnii and the possible danger of intrauterine infection.

### Ante-partum Haemorrhage

Dilute oxytocin was used by intravenous drip in certain cases of accidental haemorrhage immediately after induction of labour by low amniotomy. In such cases there is an urgency to remove the child from the uterus, and, in severer grades, laparotomy may be necessary if labour does not start quickly or if severe concealed accidental haemorrhage is suspected. In these cases there may be intravascular clotting and extravasation of blood amongst the muscle fibres of the uterus, so that its physiological control is upset, and the additional stimulation of oxytocin may be necessary to bring on labour.

Similarly, the use of the drug may be indicated in some cases of placenta praevia where low puncture of the membranes does not bring on labour quickly and where bleeding continues.

### Uterine Inertia

The work of Reynolds (1949), Nixon (1952), Caldeyro Barcia and Alvarez (1952), and Jeffcoate *et al.* (1952) has done much to elucidate the problems of inadequate uterine action. As Jeffcoate *et al.* (1952) have noted, it is only in hypotonic states that uterine stimulants are permissible; if they are given in hypertonic or incoordinate states they will aggravate the condition.

In hypotonic uterine inertia the use of dilute intravenous oxytocin has been shown by many workers to be of great value (Theobald *et al.*, 1948; Kaufman *et al.*, 1953; Stone *et al.*, 1955).

After a period of poor infrequent pains, during which time the patient becomes more and more disheartened and anxious, the administration of oxytocin by intravenous drip will give dramatic results, particularly if the membranes have ruptured (Table IV).

TABLE IV.—*Use of Intravenous Oxytocin Drip in 20 Cases of Hypotonic Uterine Inertia*

| Interval Before Use of Oxytocin | No. of Cases | Oxytocin–Delivery Interval | No. of Cases |
|---|---|---|---|
| 12 to 23 hours | 2 | Less than 6 hours | 12 |
| 24 „ 35 „ | 7 | 6 to 11 „ | 7 |
| 36 „ 47 „ | 8 | 12 „ 17 „ | 1 |
| 48 „ 59 „ | 2 | | |
| 60 or more hours | 1 | | |

## Contraindications to Use of Intravenous Oxytocin

Pituitary extract is a powerful stimulant of uterine action, and if improperly used may lead to uterine rupture (Ferguson *et al.*, 1952) or even to maternal death (Mauzy, 1954; Lesser and Eason, 1954). Sufficient has already been written of these dangers to make further comment unnecessary.

Because of the known dangers of oxytocin it is unwise to use the drug in: (1) cases where there is disproportion or contraction of the pelvis; (2) in cases where a previous hysterotomy or caesarean section has been done, particularly if the section was a "classical" one; (3) in cases of abnormal presentation; and (4) in cases of multiple pregnancy where there is much uterine distension and the membranes are unruptured.

Most authors claim that the use of oxytocin in women having their sixth or subsequent baby is unwise, and in theory this should be true, as a greater amount of connective tissue is present in the uterus.

TABLE V.—*Age and Parity in Relation to the Use of Intravenous Oxytocin Drip in Labour*

| Age | 15–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40 or more |
|---|---|---|---|---|---|---|
| No. of cases | 6 | 19 | 32 | 23 | 13 | 7 |

| Parity | 0 | I | II | III | IV | V | VI | VII | VIII | IX | X or more |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of cases | 17 | 7 | 13 | 8 | 9 | 12 | 7 | 12 | 8 | 2 | 5 |

In this hospital, dilute intravenous oxytocin has been given to patients of all ages and parity, and we have had no anxiety during any labour so treated (Table V).

## Dangers of Intravenous Oxytocin Drip: Foetal Loss

Intravenous infusion of any substance has intrinsic dangers, and the use of oxytocin may constitute an additional hazard, as has already been pointed out.

In the present series two foetal deaths were directly due to the method, and both were preventable. Both of these deaths occurred early in the series, and the experience led to the development of the method now used. Since the introduction of this regime there has been no further foetal death due to the method, and in the entire series there has been no maternal death.

The death of the first baby was due to an episode of severe intrauterine anoxia that occurred during a rigor. This was later proved to be due to saprophytic contamination of the dextrose–saline with which the oxytocin was diluted. Although the baby was born alive, it remained cyanosed and died on the third day of life. Necropsy showed hyaline membrane in the lungs.

In the second case, labour was induced by high puncture of the membranes for a deteriorating pre-eclampsia. Twenty-seven hours later labour had not begun and a dilute oxytocin drip was started, a dilution of 1 in 1,000 in 10% dextrose being used. Unfortunately the solution was allowed to run initially at a rate of 60 drops a minute, and a severe uterine spasm occurred. There was evident foetal distress, and, although the child was born alive three hours later, it died the same day. Necropsy showed that death was due to intracranial haemorrhage.

After this death we developed the regime in use to-day, with a much stricter control of the rate of drip. I do not think it necessary for a doctor to remain constantly with the patient, nor is this practicable here, but the patient should be attended, and it is not difficult to train a midwife to detect any abnormality which may arise.

## Optimum Dosage of Intravenous Oxytocin

If it is decided to use the drug the aim should be to induce uterine contractions within a period of three hours, and to produce contractions which last for 30 to 60 seconds and recur at intervals of three to five minutes. Between contractions the tone of the uterus should not be raised. Since an intravenous drip is uncomfortable for the patient, it should rarely be continued for more than 12 hours. After this time the drip should be removed to allow the patient to sleep, but if labour is not progressing on the following day the drip may be started again.

What, then, is the best and safest dilution of oxytocin to use in order to meet these conditions? In the past 27 months we have used dilutions of 1 in 10,000, 1 in 5,000, and 1 in 1,000, and as the effects have been so variable it seems that patients differ in their sensitivity to the drug. The present regime takes this factor into consideration.

When an indication for the use of oxytocin by intravenous drip exists, a solution of 1 in 5,000 in dextrose or dextrose–saline is prepared. The drip is started at a rate of 20 drops a minute for 30 minutes, increasing by 10 drops a minute every half-hour (to a maximum of 60) until the pains are regular, last 30 to 60 seconds, and recur every three to five minutes. If the pains occur at shorter intervals, or are of longer duration, the drip is slowed.

If labour is progressing satisfactorily at this dilution, the drip is continued until delivery occurs or 12 hours has passed. If, however, no contractions or only contractions of poor quality occur when the drip is running at 60 drops a minute, the solution is replaced by one of 1 in 1,000. Initially this is run at a rate of 20 drops a minute, increasing as necessary by 10 drops a minute every half-hour to a maximum of 60.

TABLE VI.—*Use of Present Regime in 30 Cases*

| Indication | Strength of Solution Used | | |
|---|---|---|---|
| | 1 : 5,000 | 1 : 5,000 and 1 : 10,000 | Failure |
| After amniotomy | 7 | 10 | 2 |
| After spontaneous rupture of membranes | 2 | 1 | — |
| In ante-partum haemorrhage | 2 | — | — |
| In inertia | 4 | 2 | — |

Of the two cases of failure, the first was delivered on the following day after 400 ml. of the 1 in 5,000 solution. The second was improperly selected and failed to be delivered after a second infusion. She went into spontaneous labour and gave birth to a live child three days later.

This regime has been used 30 times, and in only two patients has it been necessary to repeat the infusion on the following day. The patients were then delivered, but these cases are considered failures.

### Summary and Conclusions

From experience of dilute intravenous oxytocin drip I am convinced that it is a valuable addition in selected cases. However, since any intravenous infusion has potential dangers, and since pituitary extract has particular dangers, the method should be used with care. There is no place for its use as a routine in the initiation or stimulation of labour; and there is little place for its use alone in the induction of labour.

If used after the induction of labour by amniotomy, or in order to start labour pains after spontaneous rupture of the membranes, it is of great value. But in order to allow for changes in the mechanical, and perhaps hormonal, control of the uterus which follow amniotomy, I believe that, in general, its use should be delayed for about 24 hours. If this method is followed it will be found that a dilute intravenous oxytocin drip is needed in about 15% of cases induced; the remaining 85% will be in strong labour before the 24 hours has passed.

In certain cases of ante-partum haemorrhage the use of a dilute intravenous oxytocin drip is advisable as soon as amniotomy is performed.

In hypotonic uterine inertia the use of intravenous oxytocin is valuable, but once again the contraindications must be noted, and if there is any doubt it is better not to use the method.

Experience in this hospital shows that the drug is best used in a dilution of 1 in 5,000 to 1 in 1,000; the regime employed is described.

My thanks are due to the medical and nursing staff of the Maternity Department, General Hospital, Kuala Lumpur, for their care of these patients; and to the Director of Medical Services, Federation of Malaya, for permission to publish this paper.

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# COMPARISON OF MILK AND SOYA BEANS IN THE TREATMENT OF KWASHIORKOR IN UGANDA

BY

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The value of soya protein in improving the growth of undernourished children and in feeding infants and toddlers has been investigated by a number of workers. Autret and Behar (1954), who have recently reviewed this work, concluded that the results were good, although there was still some doubt whether the protein of soya was as efficient as that of milk. Dean (1952) considered that feeds based on soya beans fortified with vitamin $B_{12}$ (cyanocobalamin) gave encouraging results in the treatment of moderately severe and uncomplicated kwashiorkor. It is, however, possible that soya protein may be less well utilized than milk protein (Dean, 1954), and there is stated to be support from animal experiment for the need to add vitamin $B_{12}$ to soya diets.

A comparison of the results of a more extensive trial of feeds made from soya beans with those of milk treatment in kwashiorkor may therefore be of value. This study includes the results of feeding some children entirely on soya and banana (*Musa* sp.) without the addition of vitamin $B_{12}$ or other food factors.

Certain practical problems in the treatment of children with kwashiorkor are also examined.

### Materials and Methods

All the children in the series had oedema (not accounted for by causes other than protein malnutrition) or a low serum protein level, together with changes in colour or texture of the hair and skin lesions, and they had been under my care as in-patients within a period of eight months. For practical nursing reasons milk or soya was given to two groups of children admitted during different periods rather than to alternate children. Children whose condition was regarded as dangerous were always given milk treatment.

Cow's milk protein in the form of skim-milk powder, preceded by or reinforced with a concentrated milk protein (calcium caseinate—"casilan") was given to 35 children. No attempt was made to assess the value of these two products separately. "Milk" is used throughout the rest of this paper to indicate skim milk or casilan, or a mixture of both, and never refers to whole cow's milk. Soya beans were prepared as described by Dean (1952, 1954) and given to 42 children. "Vipac,"* 1–2.5 g. daily, as a source of vitamin $B_{12}$, was added to the feeds of 31 children. Methionine, 5 g. daily, was given in addition to eight children in this group. Supplements of sweet banana (*Musa sapientum*) or cooked plantain (*Musa* sp.), either alone as supplied in the ward diet or mixed with the soya-bean preparation in a Waring blender, were given to all children as soon as they were taking their full ration of high-protein food. Bread was also given to a few children. Records were kept of the composition of the feeds and

*Vipac contains per gramme: vitamin A, 2,000 U.S.P. units; vitamin D 400 U.S.P. units; vitamin $B_1$, 0.6 mg.; vitamin $B_2$, 0.9 mg.; niacin, 6.0 mg.; calcium pantothenate, 1.0 mg.; pyridoxine hydrochloride, 0.3 mg.; folic acid, 0.6 mg.; vitamin C, 20 mg.; vitamin $B_{12}$ activity = 6 µg.

TABLE I.—*Analysis of Results of the Treatment of Children with Kwashiorkor with Milk and Soya*

| Treatment | Total in Group | Results Satisfactory | | | | | Results Unsatisfactory | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Good | Improvement in Anaemia | Probably Good* | Total | % | Adequate Intake Not Achieved or Maintained | Died in Spite of Adequate Intake | Removed from Hospital Early | Total | % |
| Milk | 35 | 22 | 2 | 4 | 28 | 80 | 2 | 3† | 2 | 7 | 20 |
| Soya‡ | 42 | 14 | 0 | 9 | 23 | 55 | 16 | 0 | 3 | 19 | 45 |
| Milk after failed soya | 15 | 8 | | | 8 | 53 | 3 | 4§ | | 7 | 47 |
| Parenteral protein: | | | | | | | | | | | |
| After failed milk | 2 | 2 | | | 3 | 100 | | | | | |
| " " soya | 1 | 1 | | | | | | | | | |

* Patients removed from hospital. † Longitudinal sinus thrombosis, 1; anaemia, 1; pulmonary tuberculosis, 1. ‡ Soya only; soya+vipac; soya+vipac+methionine. § Pneumonia, 1; anaemia, 2; unknown, 1.

the amount taken by each child daily. The protein and calorie intake per kg. body weight were calculated from these combined records.

The children in the early part of the study were given as much reconstituted skim milk as they would take. Afterwards the feeds were restricted to give 2.5–3 g. protein per kg. body weight daily during the first fortnight in order to form a standard for assessing the results of soya therapy. Feeds were given at three-hourly intervals by cup, spoon, or nasal tube as necessary, the volume being varied according to the fluid requirements and degree of anorexia. The children were weighed daily except when they were too ill to be taken out of bed.

The criteria of clinical progress were: ease of feeding as an indication of the degree of anorexia, loss of pitting oedema, changes in body weight, healing of skin lesions, and improvement in temperament.

Serum protein concentrations were estimated on samples of venous blood withdrawn with paraffin-sterilized syringes from the external jugular vein in the morning. Samples were examined on admission, before discharge, and in some cases during therapy. Total serum proteins were measured by the specific gravity method (copper sulphate). In a few cases, including some from a later series of children treated with milk, fractionation by microelectrophoresis on filter-paper (Hardwicke, 1954) was carried out. Pancreatic enzyme concentration was measured in fluid obtained by duodenal intubation in a small number of children before and after treatment (Thompson and Trowell, 1952).

TABLE II.—*Detailed Analysis of Four Groups of Children on Different Treatment*

| | | | Treatment | | | |
|---|---|---|---|---|---|---|
| | | | Milk (All Cases) | Soya (All Cases) | Milk 2·5–3 g./kg./day | Soya 1·5–3 g./kg./day |
| Total No. of Children: | | | 35 | 42 | 9 | 20 |
| Anorexia | Present | No. of cases | 19 | 20 | 6 | 10 |
| | | % total | 54 | 48 | 66 | 50 |
| | Overcome | No. of cases | 16 | 8 | 6 | 7 |
| | | Av. period (days) | 5 | 14 | 6 | 14 |
| | Not overcome | Intake adequate | 3 | 1 | 0 | 1 |
| | | " inadequate | 0 | 11 | 0 | 2 |
| Dislike | Not overcome | No. of cases | 0 | 7 | 0 | 5 |
| | | % total | 0 | 17 | 0 | 25 |
| Oedema | Weight loss | Mean, lb. (kg.) | 3 (1·4) | 2 (0·9) | 2·75 (1·3) | 2·1 (1) |
| | | Period (days) | 9 | 8 | 10 | 9 |
| | | No. of cases | 24 | 27 | 8 | 18 |
| | No weight loss | " " " | 6 | 6 | 1 | 2 |
| Weight | Gain | Mean, lb. (kg.) | 3 (1·4) | 1·5 (0·7) | 2·0 (0·9) | 1·7 (0·8) |
| | | Period (days) | 23 | 16 | 15 | 15 |
| | | No. of cases | 26 | 15 | 8 | 9 |
| | No gain | " " " | 0 | 10 | 0 | 5 |
| Total serum proteins | Initial value | Mean (g. per 100 ml.) | 4·1 | 4·3 | 4·2 | 4·2 |
| | | No. of cases | 28 | 35 | 7 | 19 |
| | Gain | Mean (g. per 100 ml.) | 2·5 | 1·8 | 2·4 | 2·0 |
| | | Period (days) | 23 | 15 | 24 | 18 |
| | | No. of cases | 20 | 24 | 7 | 13 |
| Amylase | Initial value | Mean (units per ml.) | 0·1 | 0·5 | | |
| | Increase | | 2·6 | 1·7 | | |
| Lipase | Initial value | | 0·6 | 0·4 | | |
| | Increase | | 3·3 | 2·9 | | |
| Trypsin | Initial value | | 4·7 | 4·0 | | |
| | Increase | | 13·2 | 8·0 | | |
| | | Period (days) | 22 | 17 | | |
| | | No. of cases | 3 | 5 | | |

## Results

A general analysis of the results of treatment is given in Table I. Details of the rate of recovery are shown in Table II for the whole group and for those taking only 1.5–3 g. protein per kg. body weight during the first fourteen days of therapy. Increases in weight and in serum protein and albumin in children taking about 5 g. protein per kg. daily, are shown in Table III.

### Milk

It was found that 2.5–3 g. milk protein per kg. body weight daily was necessary to initiate recovery. No improvement occurred in two children taking less than this amount, but they recovered after intravenous plasma infusion followed by milk feeds. For a 15-lb. (6.8-kg.) child the daily requirement of protein made up in 10 oz. (280 ml.) of water gave a fluid preparation of about the same viscosity as cow's milk, which could easily be fed by nasal tube. In the majority of cases a much larger volume than 10 oz. (280 ml.) could be given in 24 hours, and hence more protein, particularly if the feed was reinforced with casilan. Anorexia made forced or nasal feeding necessary at first in just over half the series. This called for patience on the part of the nurse or relative, but presented no special difficulties. Three-hourly feeds proved to be satisfactory, and no appreciable gastric residue was found in patients who were intubated. Dislike of milk was not a problem despite the assertions of several mothers that their children would never drink milk. If food and other fluids were withheld, and nasal feeds resorted to if necessary, this aversion could be overcome in a few days. Diarrhoea with watery mucoid stools without exudate frequently developed during the first few days on skim milk. In most cases this was not severe enough to interfere with the feeding programme, and eventually cleared up. In a few cases, however, severe dehydration and electrolyte disturbances followed, constituting a serious complication which probably accounted for part of the mortality. The tendency to cause diarrhoea is the chief disadvantage of skim-milk treatment.

### Soya

Although whole soya beans contain the same percentage of protein as skim-milk powder, a large volume of water is needed to form a fluid feed of the same consistency as reconstituted skim milk. The bulk of fluid soya feeds suitable for intranasal feeding is 2½ times that of the equivalent amount of skim milk. Even at this dilution nasal feeding was often difficult because of small lumps blocking the tube.

In just over one-third of the children milk had to be substituted because of inability to achieve or maintain the necessary intake. Half of these children subsequently did well on milk. Two-thirds of those who were treated with

soya could not be persuaded to take more than 1.5–3 g. protein per kg. body weight daily during the first fortnight. Anorexia was more difficult to overcome than with milk, and forced or nasal feeding was often followed by vomiting. Residues were found in the stomachs of three children who were given three-hourly feeds by tube. In some cases four-hourly feeding was more successful, vomiting being avoided, but it limited still further the amount of protein which could be given in 24 hours. Even when the minimum intake was achieved it took so long to overcome anorexia that the patience of child, mother, and nurse became exhausted. In seven cases dislike of soya was displayed by active resistance, which increased as the general condition improved, and was sometimes so strong as to prevent continuation of this form of therapy. Diarrhoea did not occur, apart from an occasional loose stool, in children fed on soya and banana; this was certainly a very definite advantage.

There was no significant difference between the rate of total serum protein regeneration in children successfully fed on soya and in those fed on milk. The regeneration of serum albumin and pancreatic enzymes in the few children examined appeared to be slower than the average rate of increase with milk (Tables II and III).

TABLE III.—*Protein Regeneration and Weight Gains in Children with Kwashiorkor Fed on Protein from Different Sources*

| Treatment | No. of Children | Intake | | | | | Period (Days) | Weight Gain | | Serum Proteins (g. per 100 ml.) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Protein (g./kg./day) | | | | Cal./kg./day | | | | Total Proteins | | Albumin Fraction | |
| | | Milk | Beef | Beans | Total | | | (lb.) | (kg.) | Initial | Gain | Initial | Gain |
| Acute phase: | | | | | | | | | | | | | |
| Milk .. .. | 7 | 5·1 | — | — | 5·1 | * | 18 | 2·0 | 0·9 | 4·32 | 2·54 | 1·57 | 2·01 |
| Soya .. .. | 2 | — | — | 5·25 | 5·25 | * | 14 | 0·5 | 0 2 | 4·56 | 1·81 | 1·81 | 1·03 |
| Convalescent phase: | | | | | | | | | | | | | |
| Milk .. .. | 11 | 5·9 | — | — | 5·9 | 77 | 11 | 1·25 | 0·6 | 5·43† | 1·33† | — | — |
| Milk and beans .. | 5 | 4·4 | — | 1·3 | 5·7 | 80 | 10 | 2·0 | 0·9 | 6·38‡ | 1·21‡ | — | — |
| Beef and beans .. | 2 | — | 2 0 | 4·4 | 6·4 | 80 | 13 | 2·5 | 1·1 | 6·20 | 0 73 | 2·60 | 0·84 |

* Data not available. † Nine children. ‡ Two children.

### Fortification of Soya

Three-quarters of the children receiving soya were given additional vitamin $B_{12}$. Of the 11 children fed on unfortified soya, results were satisfactory in five. In three cases milk was substituted because of failure to achieve the minimum intake, and in the other two dislike prevented completion of a full course of soya therapy. Another child initially treated with soya and vitamin $B_{12}$ continued to make good progress on soya and banana alone.

Eight soya-fed children were given a methionine supplement. Three of them took the feeds well, and five refused or vomited after intervals of two to twelve days. There was no acceleration in the rate of recovery of children given methionine.

### Soya in Children Without Kwashiorkor

Alternate children admitted to the ward for conditions other than kwashiorkor were fed maize porridge fortified with soya or the equivalent amount of protein derived from skim-milk powder. Most of the children took the feeds well, and there was no greater difficulty with soya than with skim milk.

## Discussion

For comparing the effects of different proteins given as therapy or in the diet two conditions are required: the preparations should be in a similar form and should be fed at the same protein level (g. per kg. body weight) and calorie/protein ratio to alternate children; and there should be satisfactory criteria for assessing the severity of the protein deficiency in groups to be compared. It has been shown that in this study the former condition could not be entirely met. Milk was used in the form known to give the best results—namely, dried skim-milk powder and/or a concentrated milk protein. Soya beans were available only in natural form, and the preparation made from them contained considerable amounts of carbohydrate, cellulose, and fat. The assessment of severity in kwashiorkor depends largely on clinical factors which are difficult to measure quantitatively; for example, length of history, extent of skin lesions, duration and severity of diarrhoea before admission, degree of anorexia, and complications or associated conditions. On admission many children with kwashiorkor have malaria or pneumonia, and some have hookworm anaemia; others contract respiratory infections while in hospital—conditions which may aggravate their protein shortage and delay recovery. But in Uganda most children requiring treatment for kwashiorkor have such complications, and in my view it is unrealistic to exclude them when evaluating any treatment. With these reservations the second condition is satisfied. Analysis of these factors shows the two groups to be reasonably well matched as regards severity—with the balance, if anything, slightly in favour of the soya-fed group.

It has already been shown that suitably heated soya beans fortified with vitamin $B_{12}$ will cure kwashiorkor in some cases (Dean, 1952). In the present series satisfactory results were obtained in 55% of children treated with soya as compared with 80% success with milk therapy. All the children who took adequate amounts of soya feeds recovered. The better results with milk may be partly attributable to the fact that in many cases it was possible to feed much larger amounts of protein in this way. Failures with soya were attributable to the practical difficulty of feeding the mixtures, which was so great, even in many cases in which treatment was eventually successful, that it would seem to make routine use of soya-bean feeds impracticable outside specialized centres. It also reduces the possibilities of a strict comparison of the relative values of soya and milk protein. The majority of the failures were with children who could be persuaded to take only 1.5–2 g. soya protein per kg. body weight daily; comparisons with the efficacy of milk protein could therefore be made only at this level.

Provided the intake of protein was adequate, there was no significant difference in the degree and speed of clinical recovery as between the two groups except in the time taken to overcome anorexia. The explanation of this may lie in the different calorie value of the feeds; high-protein feeding after admission probably increases protein metabolism and therefore calorie requirements. The calorie/protein ratio of the soya feeds used was higher than that of the milk mixtures. If appetite represents unsatisfied calorie needs, children fed soya might be more readily satisfied than those given milk. The comparison will need to be made with isocaloric feeds before any definite deductions can be drawn as to the effect of soya on appetite. The significance of this point was not appreciated until after this study was completed.

The rate of regeneration of serum albumin and pancreatic enzymes with vegetable protein deserves further study. The fact that soya protein, without additional vitamin $B_{12}$, can reverse the clinical and biochemical changes of kwashiorkor suggests that "animal protein factor" may not be essential; and that total protein intake may be more important, at least in some cases, than the content of the various essential amino-acids.

The possible contribution of soya to the practical therapeutics and prevention of protein malnutrition must be

considered in relation to general principles. That soya beans compare unfavourably with milk for the treatment of established kwashiorkor may be due entirely to mechanical factors. If this is so, processed soya might be an adequate source of protein, and an acceptable and inexpensive product might be a valuable alternative to or substitute for milk. At present milk is the best-known source of protein. It is probable that supplies of dried skim milk are adequate for this restricted purpose and should continue to be used. Treatment would require only a small fraction of the amount of protein that is needed for prevention. For large-scale prevention, however, elaborately processed foods are not necessary, and are unlikely to be applied successfully. Experience of the way in which some African mothers use patent foods in infant feeding—that is, as they would a powerful medicine, in teaspoonful doses—convinces me that the best results will be obtained from foods that can be used as nearly as possible in their natural form. Soya beans could be used in this way in areas where they are commonly grown and popular, and where methods of preparation and cooking are traditional ones. There are at present few districts in East Africa where such conditions prevail, but it is certain that feeding habits must change, and soya, which grows well in many parts of the country, may come to be accepted in spite of the demands it must make on the time and skill of the housewife. Its acceptability as a supplement for children not suffering from kwashiorkor has been confirmed in this study.

There are, however, already available among locally traditional foods vegetable sources of protein which can be used for small children. Experience of feeding common beans (*Phaseolus vulgaris*) to 16 convalescent children, who had been treated with skim milk initially, shows that such beans can make a contribution to the daily protein intake. In five cases the diet was calculated so that the total protein and calorie intake remained constant before and after the addition of beans (Table III). These children took from one-seventh to one-third of their daily requirements of protein in the form of beans. Their progress was not significantly different from that of children fed wholly on milk. These beans can be prepared in the home, as the carefully controlled cooking needed to destroy the trypsin inhibitor contained in soya beans is unnecessary. Toddlers will not be able to meet all their protein needs from this relatively poor source. If, however, such foods were used as a basis for the diet they could be supplemented with smaller amounts of more expensive protein-rich foods—for example, with milk, small amounts of which are more often available than is generally recognized. Children whose parents keep cows have indeed been admitted to hospital with kwashiorkor, their mothers not being aware that milk was needed after weaning. Dried beef has also been used with good results—mixed with beans for three children, and added to small amounts of milk for three others (Table III).

The value of any food in the prevention of kwashiorkor will depend ultimately on the way it is used in the home. Furthermore, available sources of protein are not being fully used because of ignorance of their value. Education, especially of adults in community centres, clubs, and child-welfare and antenatal clinics, is the first essential. Teaching the needs of the child and how to use readily available home sources of protein may do more in this way than the provision of processed foods, since without education it is unlikely that the latter will prove effective.

### Summary and Conclusions

An attempt has been made to compare the effects of milk and soya protein in the treatment of children with kwashiorkor in Uganda.

Milk feeds prepared from reconstituted dried skim-milk powder were given to 35 children, preceded or reinforced with calcium caseinate in a few cases. A daily protein intake of 2.5 g. per kg. body weight was found to be necessary. Most children would take more than this, but diarrhoea was a troublesome complication in some of those fed on skim milk.

Feeds prepared from soya beans were difficult to administer and had to be abandoned in one-third of the 42 children started on this diet. In the remainder daily protein intake was adequate, though limited to 1.5–2 g. per kg. body weight in the majority. At this level the only significant difference between the two forms of treatment lay in the longer time taken to overcome anorexia with soya than with milk. This may have been due to the different calorie value of the feeds.

Soya alone was as effective as when supplements of vitamin $B_{12}$ or methionine were added.

The implications of this experience in framing policies for prevention and treatment of kwashiorkor are discussed. It is suggested that milk products should continue to be used for treatment. For prevention, education is the first essential. Much could be done to improve the supply and use of naturally occurring protein sources.

I should like to thank the Director of Medical Services, Uganda, the Medical Superintendent of Mulago Hospital, and Dr. H. C. Trowell for the opportunity to do this work. I am grateful to Dr. R. F. A. Dean for the soya beans and the method of preparing them; to Dr. Mann, Kenya Veterinary Department, for beef powder; and to Dr. T. F. Macrae, Glaxo Ltd., for supplies of casilan. Further, this work would have been impossible without the co-operation of Miss J. Greaves, S.R.N., Mrs. Gilmore, S.R.N., and Mrs. Eddie, S.R.N., who made the feeds; and of Staff Nurse Theresa Kunibira, who fed and cared for the children.

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# Medical Memoranda

## Reticulum-cell Sarcoma of the Kidneys, Presenting as Motor Paralysis of Lower Limbs and Bladder

The case reported below is of interest because of its rarity and the unusual mode of clinical presentation.

### CASE REPORT

An African schoolboy aged 17 was admitted to hospital under my care on July 7, 1954, and died 29 days later. In childhood he had been treated for secondary yaws and an ulcer on his right leg which had taken one year to heal. Fourteen days before admission he had stiffness and pain in the lumbar region on getting out of bed in the morning. He was unsteady on rising and had to hold on to the furniture to avoid falling. The next day he was unable to walk. He had lost weight and had had slight fever for three days.

On examination there was generalized wasting. The cranial nerves and upper limbs were normal. Abdominal reflexes were all absent. He was unable to move his lower limbs. Attempts to do so were accompanied by severe pain in his back. There was no sensory loss. Knee and ankle jerks and also both plantar reflexes were absent. There was complete flaccid paraplegia. His bladder was distended to the umbilicus.

During the 48 hours after admission retention of urine with overflow supervened. Apart from spontaneous

improvement in bladder function seven days after admission, he gradually grew worse and died on August 5. Haematuria appeared a week before death.

*Laboratory Findings.*—Cerebrospinal fluid: pressure normal—no block; protein, 30 mg. per 100 ml.; cells, 420 per c.mm., mainly lymphocytes; sugar, 62 mg. per 100 ml. Blood: red cells, 4,590,000; white cells, 8,500 (neutrophils 70%, eosinophils 5%, large lymphocytes 24%, monocytes 1%); Hb, 75%; Kahn test +++; no sickling of red cells. Urine: reaction, acid; S. G. 1005; sugar, nil; red blood cells, ++; few pus and epithelial cells; no schistosome ova. *X*-ray films of the chest and lumbar spine were normal.

*Post-mortem Examination.* The following were the relevant findings.—*Right kidney:* circular tumour on upper and lateral pole, about 2 in. (5 cm.) diameter growing from kidney substance; weight 400 g.; capsule adherent; section revealed many round pale areas. *Left kidney:* similar, but no tumour bulging out; weight 380 g. *Spinal cord:* blood-stained C.S.F.; no sign of obstruction. *Lumbar vertebrae:* no secondaries seen by naked-eye examination.

Macroscopically there was great blurring of pattern of kidney by diffuse grey infiltration (tumour). Microscopically, the kidney showed wide separation of parenchymal structures by tumour cells. *Spinal cord:* Infiltration with tumour cells was conspicuous in the anterior and posterior roots in the lumbar cord, also in the pia mater but not in the cord substance.

*Diagnosis.*—Reticulum-cell sarcoma of kidney. Secondary infiltration of lumbar spinal roots.

### COMMENT

So far as can be ascertained, a case of this type, presenting in an African aged 17, has never previously been recorded. A search of the literature revealed reports of cases of paraplegia which arose from other types of renal tumour.

Garrow and Keenan (1912) described a case of paraplegia which was, after exploratory operation, said to be a sarcoma, but at necropsy was finally stated to be due to latent hypernephroma with a solitary metastasis in the spine. A similar case was reported by Belz (1912) as being due to metastasis from Grawitz tumour into the lumbar spine. Harvey (1947), in a paper based on a study of 50 malignant renal tumours, stated: "The metastatic symptoms, excluding pain, consisted of sensory and motor disturbances in the legs, due to secondary spinal carcinoma, in three cases." The Kahn test, being positive, was not considered of significance in the face of a history of yaws.

I am grateful to the Director of Medical Services, Sierra Leone, for permission to publish this case; to Professor D. Russell, of the Bernhard Baron Institute of Pathology, London Hospital, for the histological report and her helpful advice and criticisms; and to Dr. R. A. Henson for his helpful advice and criticism.

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## Radiological Diagnosis of Splenic Rupture

A case is described of unsuspected splenic rupture diagnosed radiologically 14 days after injury.

### CASE HISTORY

A 55-year-old housewife suffered from a mild spastic paraplegia secondary to disk degeneration and had been an out-patient of the neurological department for some years. On one of the routine visits she complained of a slight ache in the left lower chest. On questioning she recalled that 14 days previously she had tripped on the carpet and struck her left side against the settee. She was shaken and went to bed because of the pain. Breathing was painful, and sleep was possible only when she was propped up in bed. She treated herself with liniment and "pills," and noted slight bruising on her left side. After a few days the pain and difficulty in breathing had disappeared and she was able to resume her normal housework. The accident had almost been forgotten when she attended the neurological out-patient department. As a precaution she was referred to the *x*-ray department with a query of fractured rib.

Antero-posterior radiographs of the ribs and abdomen showed most of the radiological signs of ruptured spleen—namely, elevated left dome of diaphragm, upward and medial displacement of the stomach, serrated gastric margin, obliteration of the splenic shadow, dense opacity below the left diaphragm, fractured eleventh left rib, and downward and medial displacement of the left kidney. A diagnosis of ruptured spleen and fractured eleventh left rib was made and the patient admitted to hospital.

Close questioning elicited further details: left shoulder pain had been present from shortly after the accident, and for some days she felt "ill in myself," "as though in another world," and, again, "as if I had the 'flu." There had been no derangement of bowel habit. She stated that she had recovered completely, apart from the ache and tenderness on the left side. Careful palpation of the abdomen confirmed the radiological diagnosis, and showed the signs of ruptured spleen as described by Hamilton Bailey (1927): abdominal rigidity, more marked in the left upper abdomen; local tenderness (Ballance's sign); slight abdominal distension; shoulder pain (Kehr's sign); and an umbilical "black eye" (Cullen's sign).

In the absence of haematuria, and as the intravenous pyelogram showed normal function in the displaced left kidney, renal damage was excluded.

It was decided to operate. At laparotomy (Mr. Murray) the ruptured spleen was found to be still bleeding and surrounded by a large haematoma. After splenectomy, convalescence was uneventful. Histological examination of the specimen showed no evidence of disease and the serological findings were normal.

### COMMENT

Numerous cases of ruptured spleen following relatively slight trauma have been recorded, but the radiological diagnosis of the condition is uncommon.

In the present case antero-posterior radiographs of the chest and abdomen provided adequate information for the radiological diagnosis, but "oblique" views are often of great assistance. Where doubt exists other procedures may be adopted to study the effects on the adnexa of the spleen: on the diaphragm, by fluoroscopy; on the left kidney, by intravenous pyelography; on the stomach, by barium-meal examination; and on the splenic colon, by barium enema. Re-examination during the period of observation is of value in confirming a provisional diagnosis and in assessing the progress of the condition.

This grave accident, with its 75% mortality rate, is often a sequel to injuries of the lower left ribs and abdomen, and its apparently low incidence in hospital records may be due to "missed diagnoses" (Gershon-Cohen *et al.*, 1951).

It is not my province or my purpose to discuss the treatment of splenic rupture, but to reiterate the dictum of McIndoe (1932) that every patient with a left-sided thoracic injury, and especially those with a lower-rib fracture, should be kept under radiological observation.

Permission to publish this case has kindly been given by Sir Harold Graham-Hodgson, Dr. M. Kremer, and Mr. C. J. B. Murray.

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# Reviews

## ALIMENTARY SURGERY

*Bickham-Callander Surgery of the Alimentary Tract.* By Richard T. Shackleford, M.D., assisted by Hammond J. Dugan, M.D. (Pp. 2,575+lxxxix (three volumes); illustrated. £21 the three volumes.) Philadelphia and London: W. B. Saunders Company. 1955.

This massive work is a descendant of the six volumes first completed by Dr. Warren Stone Bickham in 1924. These were subsequently incompletely revised for a second edition by Dr. C. L. Callander, whose death necessitated yet another writer. The present author has completely rewritten the work of his predecessor and appears to have fulfilled this immense task extremely well. This is a most complete and authoritative review of the surgery of the alimentary tract.

The first volume deals with the oesophagus, stomach and duodenum, liver and biliary tract, each part being introduced by a discussion of anatomy, physiology, and methods of investigation. Much of the text and illustrations are derived from original articles in the literature, but the author has for the most part skilfully blended these into a complete and readable account of each subject. The discussion and commentary on various procedures is intelligent and informative, whilst the fair and judicial summing-up of difficult subjects is a valuable feature. In the section on carcinoma of the oesophagus no mention is made of cervical oesophago-jejunostomy by the retrosternal route, and this part could be improved by a discussion of results. The difficult problem of bleeding oesophageal varices is fully discussed here and in the subsequent chapter on the liver, but the contention that a patient who has had a haematemesis from such varices has only a 50% chance of being alive one year later would seem open to question. The chapter on the stomach is complete, though descriptions of several outmoded operations for hour-glass stomach are included. The discussions on management of bleeding peptic ulcer and on the use of vagotomy are sane and balanced. The operative treatment of damaged bile ducts is fully described, backed by the rich experience of the Lahey Clinic and other centres where such large numbers of these unfortunate patients are treated. It is, however, disappointing to see the division of the cystic duct between clamps both advocated and illustrated. Safe though this may be in skilled hands, it is likely that this practice, combined with incomplete dissection of the duct trinity, accounts for much of the damage done by less experienced surgeons. The gall-bladder bridge and downward dislocation of the liver are mentioned uncritically as aids to exposure: the first might well be condemned, and many would prefer the second, too, to be decently forgotten.

The next volume covers pancreas, spleen, omentum and mesentery, small gut, and colon, the chapters following the same basic pattern. There are rather more minor misprints in the section on the small gut than elsewhere, but the same high standard is maintained. The descriptions of partial and complete exclusion of small-gut tumours are of questionable value. There are good chapters on ulcerative colitis and congenital megacolon. In the latter, as in every other discussion of paediatric surgery, there is repeated and detailed reference to the methods used at the Boston Children's Hospital, and all of these sections are most informative and helpful.

Volume III embraces the ano-rectal tract, hernia, and a beautifully illustrated chapter on incisions and exposure. The book as a whole does not contain many references to the British literature, but in the chapters on the rectum it is good to see such full mention of the work done at St. Mark's Hospital. In the description of congenital abnormalities of the rectum there is once again reference to the rich and carefully recorded experience of the Boston Children's Hospital. The author's surprising statement that "it is generally agreed that pilonidal cysts and sinuses are congenital and ectodermal in origin" will not find wide support in this country. The chapter on hernia is well balanced, though one would question the adequacy and disposition of a relaxing incision illustrated in the description of rectus-sheath slide repair.

Critical comment notwithstanding, this is a masterly effort for which the author deserves the warmest praise. The production is up to the usual superb standards of the publishers.

R. S. MURLEY.

## INTERPRETATION OF CLINICAL EVIDENCE

*Differential Diagnosis: The Interpretation of Clinical Evidence.* By A. McGehee Harvey, M.D., and James Bordley III, M.D. (Pp. 665+xiv. 77s.) Philadelphia and London: W. B. Saunders Company. 1955.

There are a few, regrettably few, great storehouses of information on the natural history of organic disease—places where for many decades careful clinical records have been compiled and exhaustive post-mortem reports with representative tissue "blocks" filed. One such repository is at Johns Hopkins, where long parallel dynasties of great pathologists and great clinicians have devoted their lives to the exhaustive study of disease. The existence of such data imposes on their custodians the responsibility of distilling from them the quintessence of wisdom and publishing it in a readily assimilable form. The authors of this essay on "the interpretation of clinical evidence" are to be congratulated on having so admirably fulfilled this obligation. Using as illustrations a rich collection of case records, they have produced a most educative and stimulating synthesis of the factual, analytical, and intuitive processes which underline diagnosis.

A presentation such as this is, in my opinion, much superior to the conventional textbook, which relies so much on accounts of disembodied disease in a form so abstract as often to be fantastically unrealistic. Clinical medicine is essentially an applied science, and has no meaning away from the side of a bed in which lies not an ingeniously contrived Frankenstein monster of disease but a human personality. Indeed, one might suggest that this essay might have been even better if it had included more information on the "life situation" of the patients. However, it would then have been impossibly long or would have used fewer illustrative case records.

This work can be warmly commended to serious students of medicine of all ages. The only regret is its, I suppose inevitable, high price.

W. MELVILLE ARNOTT.

## X-RAY DIAGNOSIS

*Roentgen Diagnostics.* By H. R. Schinz, W. E. Baensch, E. Friedl, and E. Uehlinger. First American edition (based on the fifth German edition). English translation arranged and edited by James T. Case, M.D., D.M.R.E. Volume III—Thorax. (Pp. 2001-3115+xvi; illustrated. £15.) London: William Heinemann, Ltd. 1953.

This book dealing with the radiology of the thorax constitutes the third volume of what must be the most lengthy textbook of radiology ever produced. Contemplating it, one is reminded of Dr. Johnson's laconic description of the Pyramids as "one of the most bulky works of manual industry."

Textbooks usually contain two elements in varying proportions. One is the exposition of material which is within the immediate experience of the author, and about which he therefore speaks with personal authority. The other consists in the compilation of facts and views from the previous literature. It would be unfair to suggest that this monument of plodding and, it is to be feared, rather uninspiring industry contains none of the first element, but what there is of it is certainly much overshadowed by the second. The value of a review of the literature depends first upon the accuracy of quotation from earlier authors, and secondly upon the method of selection of works to be quoted. A complete review up to a stated date can be of immense value to subsequent workers. A review of critically selected

contributions, with a clearly stated or implied purpose, can also be most valuable. A partial and uncritical review of the literature is little more than an annoyance.

On these counts this book, in spite of its immense length, must be regarded as wanting. To give a few examples; although it was published in 1953, there is, in the section on coal-miners' pneumoconiosis, no mention of the work of the Pneumoconiosis Research Unit of the Medical Research Council at Cardiff, nor of the generally accepted international classification of the radiological appearances of coal-miners' pneumoconiosis which was sponsored by that unit and published in 1949. As an example of inaccuracies, asbestosis is stated to be a "pure silicosis"; berylliosis is said to be a benign pneumoconiosis; carbon tetrachloride is said to be split in the lung with release of hydrochloric acid. A protest must be entered against the use of the ill-considered term "radiolucent." If a new word is required to mean translucent to *x* rays, "transradiant" is much more acceptable.

The difficulty confronting anyone who attempts to write an exhaustive textbook of this sort is ever increasing. The amount of literature to be covered is so vast that it is doubtful whether complete coverage, such as appears to be aimed at in this book, is possible. The serious worker would always wish to consult original sources and papers which have appeared since the publication of even the most recent textbook. For this reason it appears doubtful whether there remains any place for this sort of industrious compilation. A textbook should contain a much higher proportion of the personal experience of the author, and the references to published work must be informed by his critical mind. The prospective purchaser of a book costing £15 is entitled to expect a high standard. It may perhaps be recalled that Dr. Johnson found that "for the Pyramids no reason has been given adequate for the cost and labour of the work"

J. G. SCADDING.

## COLLECTED PAPERS OF KARL ABRAHAM

*Clinical Papers and Essays on Psycho-Analysis.* By Karl Abraham, M.D. Preface by Ernest Jones, M.D. Edited by Hilda C. Abraham, M.D. Translated by Hilda C. Abraham, M.D., and D. R. Ellison, M.A., with the assistance of Hilda Maas, M.D., and Anna Hackel, B.Sc. (Pp. 336. 25s.) London: The Hogarth Press and the Institute of Psycho-Analysis. 1955.

As Ernest Jones observes in a brief introduction to this second volume of collected papers, the premature death of Karl Abraham was the most severe blow that befell psycho-analysis during its first 30 years. He might well have added that psycho-analysis has not yet recovered from the blow; for there is no doubt that, had Abraham survived to exercise his unusual combination of keen clinical insight, clarity of thought, and simple precision of expression, we might well have been spared some of the more phrenetic of the neo-Jungian theories which have clouded psycho-analytic thinking since the death of Freud.

It was characteristic of the older psycho-analytical writers that their original papers included summaries of the relevant parts of psycho-analytic theory, a circumstance which makes them to this day as serviceable to the beginner as they are stimulating to the experienced analyst. For the same reason the clinical part of this volume can, and should, be read by those psychiatrists and medical practitioners who wish to familiarize themselves with the classical concepts of psycho-analysis. Psychiatrists would, however, be well advised to read first the earlier volume of Abraham's papers, which contains the cream of his clinical psychopathology.

The second and larger part of the present volume is of considerable historical and theoretical importance. It includes, among other papers of cultural interest, Abraham's monograph on the relation of dreams to myth, a psycho-analytical appraisement of the life and work of the artist Giovanni Segantini, and an interpretation of the spiritual activities of the monotheistic Pharaoh Amenhotep IV. These early essays in applied psycho-analysis display the same acumen as do his clinical studies, and should appeal to a wider anthropological and aesthetic public. A posthumous essay on Coué's autosuggestion will serve to remind medical psychologists and laymen alike how ephemeral are the fashions of psychotherapy. It is indeed a far and sad cry from autosuggestion to lobotomy.

EDWARD GLOVER.

## PATHOLOGY OF THE HEART AND VESSELS

*Pathologie Médicale du Cœur et des Vaisseaux.* Volumes I and II. By M. A. Clerc and C. Macrez. Third edition. (Volume I—pp. 1014, Volume II—pp. 561; illustrated. 8,200 francs.) Paris: Masson et Cie. 1955.

The "Medical Pathology of the Heart and Vessels" appears in two volumes; the heart is dealt with in the first and the vessels in the second. The first begins with a short account of the anatomy and physiology, and then of the examination of the heart. It is logical to take the functional capacity first. Then comes a study of the haemodynamics—including the rate of the circulation, the blood volume, the output, and estimation of blood gases, and investigation by cardiac catheter. The authors then pass on to consider the function of the lungs, and then radiological and graphic methods. Last of all comes clinical examination. The special techniques referred to are well described, though in places the account is rather short. One cannot help thinking that this is the wrong way to tackle the subject; in practice this sequence is never followed. The ideal book would start with the clinical and fit the technical to it. Then the synthesis for the student would be much easier, for special procedures are ancillary to what happens at the bedside, or should be. It is a little surprising that the interrogation of the patient is dismissed in one short paragraph as against some 60 pages devoted to physical examination. All this is very well done indeed, but the history usually provides 80% of the diagnosis. A description of diseases of the pericardium and endocardium—endocarditis being divided into two types—is followed by the important account of cardiac insufficiency. This part is very good. Treatment is well presented. This excellent work is marked throughout by clear expression and sensible thought. The print, paper, and illustrations are very good, and the index is adequate.

The volume on the vessels includes hypertension and hypotension (how does this fit in here?) and diseases of the pulmonary vessels. Here too the illustrations are good, and the whole is on a par with the first volume.

These two works provide a sound expression of modern cardiology in France, which is of a high order.

TERENCE EAST.

## EMBRYOLOGY OF THE EYE

*Embryology of the Human Eye.* By Aeleta Nichols Barber, Ph.D. (Pp. 236; illustrated. 65s.) London: Henry Kimpton. 1955.

This introduction to the study of the embryology of the human eye contains an excellent series of photomicrographs of sections of human embryos from the 7-mm. stage onwards. It is, however, rather difficult to decide which class of reader will find the book useful. Its style is somewhat too condensed and abbreviated for the ophthalmologist trainee, and perhaps not sufficiently explicit for the undergraduate. The biologist and the comparative anatomist will find it most useful as a reference series of standard stages in man. It contains brief notes on abnormal development, but these are too generalized to be of help to the clinician. Descriptions, for example, of abnormalities of closure of the foetal ocular cleft are of little value without illustrations of the appearances of the fundus, and if these were introduced the size of the book would have to be greatly increased. An attempt has definitely been made to cover too much in too small a space.

For those wishing to pursue the various subjects further there is no hint of where additional information can be obtained, as no bibliographical references are given.

IDA MANN.

BRITISH MEDICAL JOURNAL
LONDON
SATURDAY DECEMBER 3 1955

## INFLAMMATORY RESPONSE

Inflammation, the local response of tissues to injury, is characterized by the similarity of its phenomena not only in different organisms from man down to the earthworm and beyond but also in response to many different kinds of stimulus. Hence it is not surprising that research has been directed to uncovering general mechanisms or a final common pathway for the mediation of inflammatory changes. These efforts, spread over the past thirty years or so, have been mainly concerned with the key inflammatory phenomena—increased capillary permeability and migration of leucocytes from blood vessels into the damaged region. Three hypotheses have been developed to account for the increased permeability of small vessels: the histamine theory, the peptide or "leucotaxine" theory, and the serum globulin theory.

The role of histamine was studied extensively by Sir Thomas Lewis, who postulated the release of this or related H-substance from damaged cells. The histamine theory has received a considerable impetus in the past two or three years as a result of the work of W. Feldberg[1] and his associates, who demonstrated the release of histamine from intact perfused skin by a variety of organic compounds. One molecule of the most potent of these, compound 48/80, liberates 80 molecules of histamine. Histamine is also liberated if the perfused skin is made the seat of an anaphylactoid reaction.[2] Histamine release is not accompanied by any histological evidence of cellular damage. It is clear that under suitable conditions a mechanism for the release of histamine from damaged cells exists. Weight for weight histamine is still the most potent agent for increasing capillary permeability known to us.

Protein breakdown has long been thought to occur in inflammation, but the peptide theory owes its origin to V. Menkin.[3] This worker showed that enzymic digests of proteins such as fibrin increase vessel permeability and cause leucocytes to emigrate. He also found a factor in inflammatory exudates with similar properties. Menkin believed he had obtained his material in pure crystalline form and called it "leucotaxine." Although Menkin's basic observations have been confirmed, it is now accepted that his permeability factor was not pure or crystalline,[4–6] though it still appears as such in some textbooks of pathology. It has been shown that the properties of Menkin's "leucotaxine" are shared, to take only one enzymic digest of protein, by peptides of different solubility characteristics having an average of 8–14 amino-acid residues per molecule.[6] In addition, similar biological properties are possessed by a quite different pure crystalline peptide with a molecular weight of 6,000.[6] There is now general agreement that the properties attributed to leucotaxine are shared by many different peptides of suitable molecular size and configuration. It is possible that pepides increase capillary permeability by liberating histamine locally. Thus their effect is much diminished by antihistamine drugs,[6] and histamine injection makes skin refractory to the action of peptides, and vice versa.[7] Whatever their mode of action, there is no doubt that proteolytic enzymes exist in blood and tissues which, when activated, can split plasma proteins to form peptides of the appropriate molecular size.

The serum globulin hypothesis has been evolved as a consequence of recent work by A. A. Miles and his colleagues.[8] This team found in the serum of guinea-pigs a factor capable of increasing capillary permeability. The factor is a protein and appears to be in the $\alpha_2$ globulin fraction of serum. It is inert in fresh undiluted serum, but becomes activated on dilution, and is more potent than histamine. The inactivity of undiluted serum no doubt accounts for the belated characterization of this factor, though serum has in the past been reported as having a weak permeability effect. It is possible that Miles's globulin was the active agent in the preparations of V. H. Moon and G. A. Tershakovec,[9] who showed that saline homogenates of various tissues have the capacity, apparently in the protein component, to increase permeability. Miles's work introduces the possibility that there exists for the mediation of inflammatory changes a pre-existing system, analogous to the blood-clotting mechanism, that is normally inert but is activated under appropriate conditions. That it actually plays a part in inflammation remains to be shown.

[1] Feldberg, W., and Paton, W. D. M., *J. Physiol.* (*Lond.*), 1951, **114**, 490.
[2] —— and Schachter, M., ibid., 1952, **118**, 124.
[3] Menkin, V., *Dynamics of Inflammation*, 1940, New York.
[4] Duthie, E. S., and Chain, E., *Brit. J. exp. Path.*, 1939, **20**, 417.
[5] Cullumbine, H., and Rydon, H. N., ibid., 1946, **27**, 33.
[6] Spector, W. G., *J. Path. Bact.*, 1951, **63**, 93.
[7] Miles, A. A., and Miles, E. M., *J. Physiol.* (*Lond.*), 1952, **118**, 228.
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[11] Armstrong, D., Keele, C. A., Jepson, H. B., and Stewart, J. W., *Nature* (*Lond.*), 1954, **174**, 791.
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The study of leucocytic emigration has recently been enhanced by the work of H. Harris[10] in Sir Howard Florey's laboratory. Here it was made apparent that almost all previous work on chemotaxis of leucocytes was of doubtful value. No tissue extracts could be induced to attract white cells *in vitro*, though staphylococci did so. On the other hand, typhoid bacilli also attracted polymorphs, though *in vivo* typhoid lesions are characterized by the absence of these cells. Peptides attract polymorphs *in vivo*,[3-5] but no convincing demonstration that they act chemotactically exists. Histamine, long thought not to attract leucocytes either *in vivo* or *in vitro*, apparently causes them to emigrate *in vivo* if a high enough concentration is used.[8] To account for these diverse observations a hypothesis has been formulated in Florey's laboratory suggesting that pyogenic micro-organisms exert a true chemotactic effect, but that the leucocyte accumulations seen—for example, in burns—is due merely to random emigration of white cells through damaged capillaries. As a result of local conditions the leucocytes are either killed or immobilized, and thus appear to have migrated into the damaged zone, whereas they have merely been arrested in their wanderings.

Pain is one of the cardinal symptoms of inflammation described by Galen. C. A. Keele and his associates[11] have found a pain-producing factor in inflammatory exudate and serum that they believe is similar to or identical with "bradykinin." This is believed to be a peptide of large molecular weight and has been prepared by Rocha e Silva and his colleagues.[12] It stimulates smooth muscle and lowers blood pressure, but no account of any effect on vessel permeability seems to have appeared. Histamine and peptides both cause pain on cutaneous injection, though the action of histamine is relatively weak. It is apparent that a considerable variety of naturally occurring compounds exist whose biological properties suggest that they may play a part in inflammation. A direct demonstration or refutation of their respective roles must surely follow.

## PAINLESS MYOCARDIAL INFARCTION

Myocardial infarction sometimes occurs without pain. In 2 of the 100 cases reported by J. Parkinson and D. Evan Bedford[1] infarction supervened painlessly upon congestive cardiac failure. C. F. T. East and his colleagues[2] described eight cases in which the onset of the infarction was related to dyspnoea but not to pain. But there is no general agreement on the frequency of painless infarction. Although C. C. Wolferth[3] and A. M. Babey[4] found that it was very rare, other workers have taken the opposite view. Thus N. S. Davis[5] found painless infarcts in 29 of 76 cases, and L. J. Boyd and S. C. Werblow[6] in 33 of 127 cases. Sudden death due to infarction, with no previous history of pain, occurred in a further 11 of Davis's cases.

There are many possible reasons why patients may not complain of pain. It may be masked or overshadowed by graver symptoms, such as severe dyspnoea, as in the patients of East, Bain, and Cary. An acute infarction may herald an acute attack of pulmonary oedema due to left ventricular failure. Pain may also be dulled or masked by faintness or syncope[7], particularly if the infarct damages the conducting tissues and produces heart block. C. Papp[7] reported complete absence of pain in 7, and slight pain in 1, of 150 cases of acute cardiac infarction. Three of the 8 patients had congestive heart failure, the predominant acute features being orthopnoea with severe distress, and cyanosis. Five patients had complete heart block, which was thought to be closely related to the absence of pain. Papp pointed out that if complete block occurs suddenly the compensating mechanisms (increase in stroke volume and blood pressure) do not occur, so that modified Stokes-Adams attacks may follow without stopping or even slowing of the ventricles. Thus faintness was the predominant symptom in Papp's patients, complete loss of consciousness occurring in only one. In another series[8] 4.5% of 220 cases had painless infarcts, while 6.8% had various forms of disagreeable precordial sensation such as paraesthesiae, oppression, or a choking sensation. Evidently in some cases of cardiac infarction the pain may be masked by acute dyspnoea or by disturbances of consciousness due to sudden defects in conduction of the cardiac impulse. Acute circulatory failure and vomiting may also obscure pain. Moreover, a history taken in retrospect may be


[1] Parkinson, J., and Bedford, D. E., *Lancet*, 1928, **1**, 4.
[2] East, C. F. T., Bain, C. W. C., and Cary, F. L., *ibid.*, 1928, **2**, 60.
[3] Wolferth, C. C., *J. Amer. med. Ass.*, 1937, **109**, 1769.
[4] Babey, A. M., *New Engl. J. Med.*, 1938, **220**, 410.
[5] Davis, N. S., *J. Amer. med. Ass.*, 1932, **98**, 1806.
[6] Boyd, L. J., and Werblow, S. C., *Amer. J. med. Sci.*, 1937, **194**, 814.
[7] Papp, C., *Brit. Heart J.*, 1952, **14**, 250.
[8] Roseman, M. D., *Ann. intern. Med.*, 1954, **41**, 1.
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[10] Wade, E. G., and Jones, A. M., *Brit. Heart J.*, 1951, **13**, 319.
[11] Blumgart, H. L., Schlesinger, M. J., and Zoll, P. M., *J. Amer. med. Ass.*, 1941, **116**, 91.
[12] Keefer, C. S., and Resnik, W. H., *Arch. intern. Med.*, 1928, **41**, 769.
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[14] Herrick, J. B., *Amer. Heart J.*, 1931, **6**, 589.
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[17] Blumgart, H. L., Schlesinger, M. J., and Davis, D., *Amer. Heart J.*, 1940, **19**, 1.
[18] Feil, H., *Amer. J. med. Sci.*, 1937, **193**, 42.
[19] Sampson, J. J., and Eliaser, M., Jr., *Amer. Heart J.*, 1937, **13**, 675.

inaccurate because morphine has produced retrograde amnesia for pain, especially in old persons. Another way in which cardiac infarction may present is by arterial embolization some days after the infarction.[9] Not infrequently patients present with typical angina of effort,[10] and it is worth while recalling the studies of H. L. Blumgart and his colleagues,[11] who found evidence of old complete occlusion of at least one major coronary artery at necropsy in all cases of angina pectoris without valvular lesions or hypertension.

Even when allowance has been made for other symptoms which obscure pain, some cases remain in which infarction appears to be quite symptomless. C. S. Keefer and W. H. Resnik[12] considered that a low threshold to pain or slow infarction might account for the absence of pain in the same patients. W. E. Marchand[13] noted that pain was a feature of acute infarction in only 62% of a series of chronic psychotic subjects and believed that the meaning of pain was lost to them. J. B. Herrick[14] suggested that the ischaemia produced by gradual narrowing of a coronary artery slowly destroyed nerve endings in addition to muscle, and produced local analgesia.

The existence of syndromes intermediate between typical cardiac infarction and angina of effort,[15-17] the studies of Blumgart *et al.*,[11] and the fact that intercoronary anastomoses form and prevent infarction in many cases with established thrombosis all indicate the influence of the rate of occlusion upon subsequent infarction. Blumgart *et al.* consider that this account of the pathology accords well with the concept of ischaemic pain being due to myocardial ischaemia. Thus the onset of a major occlusion in a subject without adequate collateral vessels is likely to be followed by intense ischaemia, muscle necrosis, and a severe clinical syndrome, of which pain is the dominant feature.[3 14] By contrast, small areas of infarction may occur silently in subjects with collateral anastomoses until heart failure, arrythmia, or sudden death occurs, pain being only a minor feature. Assessing the frequency of pain in infarction is further complicated by the difficulty of determining the exact time when the infarct started, and attacks of atypical anginal pain may precede an infarction in which pain is but a minor feature.[16-19]

In short, ischaemic heart disease is a continuous process which is liable to be punctuated by attacks of angina of effort, atypical angina at rest, heart failure, and typical acute myocardial infarction, and which is often ended by sudden death. The clinician may well bear in mind the common substitutes for ischaemic cardiac pain, such as acute pulmonary oedema or dyspnoea, disturbances of consciousness or syncope, acute circulatory failure, or more rarely arterial embolism, and not require a history of severe precordial pain before making a diagnosis of myocardial infarction.

## BANNING OF HEROIN

The decision of the Home Secretary to prohibit the manufacture of heroin has brought about a determined opposition to this by the B.M.A., as expressed by the resolution of the Representative Body in June, by leading physicians, among them the late Lord Horder, and by members of the public. The history of the subject shows once more that when only vague threats to do something are made the reaction to them is apathetic or non-existent. Those concerned with the control of the international drug traffic have been working for the prohibition of the manufacture of heroin for more than a quarter of a century. An expert committee[1] of the League of Nations recommended in 1931 that in view of the dangers of heroin as a drug of addiction governments should consider the possibility of "abolishing or restricting its use." In 1949 the Permanent Central Opium Board expressed its concern with the increase in the medical use of heroin, as it had been found in the past that a rise in the legitimate use of such drugs was followed by increase of addiction and of illicit supply. In commenting[2] on this we urged that the medical profession should again examine the therapeutic value of the substance and weigh this against its social danger. We concluded there was some justice in the Permanent Central Opium Board's claim of "an *a priori* case for its total abolition." At that time some 50 countries had banned the use of heroin. At that time, too, the Pharmacopoeia Subcommittee of the Science Committee of the B.M.A. agreed to the deletion of heroin from the *British Pharmacopoeia* "on account of social disadvantages, although it has therapeutic value." In commenting on a resolution of the Assembly of the World Health Organization in 1953 to abolish the production and importation of heroin throughout the world, we observed[3] "it thus becomes of interest to inquire to what extent diamorphine is an indispensable drug," and came to the conclusion that the indications for its use in preference to other similarly acting drugs did not "perhaps"

[1] League of Nations, C.455.M.193, 1931, XI.
[2] *British Medical Journal*, 1949, 1, 107.
[3] Ibid., 1953, 2, 196.
[4] Ibid., 1955, 1, 1426.
[5] *The Scotsman*, September 17, 1955.

constitute very convincing arguments that it was indispensable in comparison with the reasons in favour of its abolition. Dr. A. H. Douthwaite was the only reader who then wrote to the *Journal* about this. He considered that if "heroin can be satisfactorily replaced by other drugs . . . no exception should be taken to its banishment." But he doubted then, as he does now, whether it can be satisfactorily replaced, a view which has widespread and authoritative support. At the same time there is authoritative support for the alternative view—the support, for example, of the Medical Advisory Committee of the Central Health Services Council of the Ministry of Health. It is presumed that this Committee was asked to express its opinion, not on whether heroin should be banned, but on whether a satisfactory substitute was available to doctors, especially for the relief of pain from incurable cancer. The first of the above views is supported by a pharmacologist of wide experience, Dr. J. Trevan, who said in a letter to this *Journal*[4] five months ago: "There is an *a priori* reason for supposing that the claim for retaining heroin may be sound." In the midst of such conflict of evidence Dr. Trevan's plea for a controlled clinical trial should be seriously considered. This would, he observes, be a difficult and protracted work, "but the issue at stake, the relief of the agony of the dying, is so important that an attempt at a controlled trial should be made."

In the U.S.A. heroin has been prohibited since 1925. Addiction has increased in that country. In Britain, with no ban, known addiction is on a small scale. Two months ago Dr. H. Berger, consultant on internal medicine to the U.S. Public Health Service, is reported[5] to have made the following observation to the Third International Congress on Criminology: "It seems a shame that you in Britain, who are held up as an example to the world on how to handle this problem, are now about to go wrong and do what we did." In an ageing population cancer is on the increase. Many medical men are much alarmed at the prospect of not being able to give some seriously ill patients such relief from pain they consider cannot be obtained by other drugs. Other doctors can conduct their practices without using heroin. When a pharmacologist of the standing of Dr. Trevan advocates a controlled trial, then all of us who have held that heroin could be dispensed with would be wise to suspend judgment until a further investigation into this difficult question has been made to decide, among other things, whether a controlled trial would be practicable. Renewed consultation between clinicians and pharmacologists would seem to be called for. We may hope that the Home Secretary will suspend action until such an investigation has been made and completed.

## RHEUMATIC PNEUMONIA

The diagnosis of rheumatic pneumonia is made much less often than formerly. The signs of left lower lobar consolidation previously ascribed to a spreading rheumatic process are now attributed to lobar compression by pericardial effusion. The abrupt pleurisy sometimes seen is thought usually to be due to pulmonary infarction. A group remains of patients in whom the diagnosis of acute rheumatism is not in doubt and who develop respiratory symptoms; chest radiography shows bilateral hazy shadowing. It is to this group that the term is now usually applied. Now it seems that an alternative explanation is possible.

The occurrence of pulmonary oedema during salicylate therapy was reported in 1950,[1] when two cases were described, and now two more have been added to the literature. J. Sutcliffe[2] reports the case of a girl aged 13, known to have mitral stenosis and incompetence and aortic incompetence, in whom a recurrence of rheumatic activity had been diagnosed. She received three courses of salicylates. On the eighth day of the first, her respiratory rate asleep was 50, and increased by the tenth day to 90 a minute. Her temperature rose from 99° F. (37.2° C.) to 103.6° F. (39.8° C.), cyanosis was noted, and she was troubled by cough. On auscultation rales were heard over all the right lung and much of the left. There was no evidence of raised venous pressure and no oedema elsewhere, and an electrocardiogram showed only sinus tachycardia. Purpuric spots were seen on the shoulders, and Hess's test of capillary fragility was positive. White blood cells totalled 16,000 per c.mm., and the urine was normal. A radiograph showed "dense, cloudy shadowing, widely distributed in both lungs, more on the right than left." A second course of salicylate produced a similar picture. In neither of these was the relation of the lung disorder to the salicylate established beyond doubt, and after a month with no symptoms or fever a trial course was started. Between 40 and 80 gr. (2.6 and 5.2 g.) of calcium aspirin daily was given, sufficient to achieve plasma levels of 46.4 and 36.4 mg./100 ml. on the eighth and ninth days. The respiratory rate increased on the fifth day, reaching a maximum of 44 a minute on the eighth. The temperature rose on the ninth and tenth days, and it was clear that an illness similar to that seen before was beginning. Daily radiographs were taken, and the same changes as seen previously were observed from the sixth day. Salicylates were stopped on the eighth day, but it was several days before the temperature and respiration rate settled and the radiographs became clear.

[1] Reid, J., *et al.*, *Quart. J. Med.*, 1950, **19**, 1.
[2] Sutcliffe, J., *Brit. J. Radiol.*, 1955, **28**, 314.
[3] Phear, D. N., *Arch. Middx Hosp.*, 1955, 5 (N.S.), 172.

A clear relationship seems to have been established between the condition of the lung and salicylate therapy, and the author is satisfied that its main feature was pulmonary oedema. It is difficult to propose an alternative, although it is a little odd that the patient was comfortable lying flat. Dr. D. N. Phear[3] has described another similar patient, to whom sodium salicylate was given; the patient slowly improved after a change to aspirin.

Two explanations of the disorder seem possible. It may be a sensitivity phenomenon; the fever, leucocytosis, and purpura would support this. Or it may be due to hypervolaemia, an increase in blood volume, which is known to occur with salicylate therapy or with excessive sodium intake (as in Phear's case), the oedema being manifest in the lungs because of the coexistent left-sided heart disease. The fall in the packed cell volume in Sutcliffe's case from 38% on the first to 29% on the ninth day, and the fall and subsequent rise in haemoglobin in Phear's, lend support to this idea. But, whatever its mechanism, it is obviously of clinical importance, and awareness of the condition may well lead to more frequent recognition.

## MELAENA IN THE NEWBORN

Spontaneous melaena in the newborn first calls to mind haemorrhagic disease, which is discussed this week by Professor Wilfrid Gaisford in the series "Emergencies in General Practice" (p. 1379). Although this is probably the commonest cause of melaena, occasionally the source of the blood is maternal. The observation that the foetus may ingest maternal blood in cases of premature separation of the placenta was made fifty and more years ago,[4 5] but unless the medical attendant is certain that the source of melaena is maternal it is best to presume that the blood is from the infant and act accordingly. Points which will help to distinguish the source of blood include a history of antepartum haemorrhage, the presence of blood-stained amniotic fluid, the onset of melaena within the first twelve hours, the absence of anaemia in the infant, and a prothrombin time normal for the newborn infant. To help further in distinguishing between the two sources of blood, L. Apt and W. S. Downey[6] have recently suggested a test which distinguishes between adult and foetal haemoglobin. The basis of it is the fact that foetal is more resistant than adult haemoglobin to denaturation with alkali. For this test blood must be visible to the naked eye in the stools; tarry stools are not suitable, because the oxyhaemoglobin has already been converted to haematin. The technique is simple: a small amount of stool is mixed with water in a test-tube in the proportion of about 1 part of stool to 5 of water; the supernatant solution must be pink; the tube is centrifuged for a few minutes and the haemoglobin solution decanted; 1 ml. of N/4 sodium hydroxide is now added to 5 ml. of the haemoglobin solution and the colour change noted after two minutes. If adult haemoglobin is present the solution turns brown-yellow, but it remains unchanged if foetal haemoglobin is present. To resolve doubt, a drop of the infant's blood can be used as a control.

When the test was tried out on thirteen infants with melaena during the first three days of life a positive reaction for foetal haemoglobin was obtained in six cases. Unfortunately, the diagnoses of some of these cases are insufficiently documented, but in one striking case the test was exceedingly helpful, a volvulus being found at laparotomy. In order to find out how much bleeding is necessary to produce visible blood in the stools Apt[7] introduced measured amounts of blood into the stomach of newborn infants within the first few hours of life; he showed that 35 ml. or more of blood was sufficient to cause bloody stools in almost all cases, whereas 15–20 ml. caused this change in about a quarter of the cases. Yet when this was repeated after the infant had passed all his meconium only 10 ml. of blood was necessary to produce the same grossly bloody stools.

Though stools with visible blood are not commonly encountered during the first few days of life the application of this test may, in conjunction with the clinical features, be a help in diagnosis. Of help, too, is an awareness that melaena may be due to blood that has come from the mother and is therefore of no serious consequence to the newborn infant.

[4] Widerhofer, H., in Gerhardt, C. von, *Handbuch der Kinderkrankheiten*, 4, 1878, 2, 418, Tübingen.
[5] Baisch, K., *Handbuch d. Geburtshilfe*, 1907, 3, 486, Wiesbaden.
[6] Apt, L., and Downey, W. S., *J. Pediat.*, 1955, 47, 6.
[7] Apt, L., ibid., 1955, 47, 1.

## THE NUFFIELD FOUNDATION

The first report of the Nuffield Foundation was published in 1946, and the tenth report,[8] published this week, glances back at the twelve years of the Foundation's existence, during which it has made grants of £875,000 for medical research (including £295,000 for rheumatism), £586,000 for biological research, £614,000 for research in the physical sciences, and £684,000 for projects in social science. On the care of the elderly and research into the problems of ageing it has granted a total of nearly £1m. The report also describes some of the new projects which are to be helped. In the Tyne Valley preparations are being made for a consultative industrial health service, beginning with a survey of existing medical facilities and needs. To cover the cost of this survey the Foundation has offered a grant of £5,000. The Burden mental research organization at Bristol is engaged in a study of the causes of certain types of mental deficiency, especially those believed to be due to sudden damage to the brain by vascular disturbance at or near the time of birth. The Foundation is granting £17,500 to support this research. With the help of the Foundation a second heart–lung machine has now been built in the department of surgery of the London Postgraduate Medical School, and the Foundation has advanced a sum of up to £10,000 to finance the building of six such machines for other

[8] The Nuffield Foundation, Report for the Year Ended March 31, 1955.
[9] See annotation in *British Medical Journal*, 1955, 2, 610.

leading centres of surgical research. The largest allocation of last year's income was set aside for a grant already promised to the National Corporation for the Care of Old People, but in addition the Foundation is supporting a study at St. Bartholomew's Hospital Medical College of the physiology of ageing from conception to death, and also a survey in a metropolitan borough of the opportunities for employment open to elderly workers. Another problem in which the Foundation is interesting itself is the expense of producing learned journals. A sum of £43,750 for five years has been set aside for assisting such journals, which are facing economic difficulties because of steeply rising costs. It is proposed to show how economies may be made by the bulk buying of paper, improved production and sales techniques, and some measure of centralization of effort.

Much of the work of the Foundation lies in the assistance of long-term researches which bear their fruit in due season. For example, a grant of £15,000 in 1949 to a research team under Dr. Dorothy Hodgkin has led in recent months to the announcement[9] of the chemical structure of vitamin $B_{12}$. A grant of £50,000 in 1947 to the medical school at Oxford enabled Dr. R. G. Macfarlane and his co-workers at the Radcliffe Infirmary to devise a method of extracting highly concentrated anti-haemophilic globulin from ox and pig blood for the treatment of haemophilia. Assistance given overseas recorded in this annual report includes a grant to the University of Sydney for a small medical and anthropological expedition to the high country of New Guinea, and to the University College of East Africa for a combined attack by chemists, botanists, and entomologists upon some of the problems of tropical swamps. The world indeed is not too large for Nuffield enterprise.

## DEPRESSION DURING RAUWOLFIA THERAPY

Extracts of *Rauwolfia serpentina* are coming into common use in the treatment of hypertension and in psychiatric disorders. J. D. Glynn[1] found the side-effects of reserpine ("serpasil") to be of minor significance in mental hospital practice, and in the experience of R. W. Wilkins[2] rauwolfia preparations are free of serious toxic effects. Nevertheless nasal stuffiness, drowsiness, decreased initiative, and fatigue are some of the minor discomforts associated with this therapy, and with excessive dosage diarrhoea, nightmares, or agitated depression have occurred. Later reports also described the occurrence of depression during the treatment of hypertension with reserpine. E. D. Freis[3] recorded five cases after treatment for long periods, and D. C. Wallace[4] observed earlier and more prolonged depression in 4 of 44 patients treated. Professor F. H. Smirk and E. G. McQueen[5] noted an incidence of 10% in 150 patients treated, 5% requiring psychiatric treatment. Three recent papers again draw attention to this possible complication. J. C. Muller *et al.*[6] describe seven cases of mental illness out of a group of 93 patients receiving the drug. Two (7%) of 28 patients taking 400 mg. of the crude root daily and five (7.7%) of 65 patients taking 1.2–4 mg. of reserpine daily for three to six months were admitted to hospital because of depression. Five of these seven patients gave a history of previous psychiatric illness. The depression came on gradually and usually after the drug had already produced other unpleasant symptoms. Anxiety and agitation, for instance, were prominent in most of the patients who became depressed. H. A. Schroeder and H. M. Perry[7] reported five cases of psychosis: in three of these prodromal symptoms of increased nervousness, insomnia, and agitation were followed after continuation of therapy by severe depression lasting one to two months. A fourth case developed an acute psychosis after parenteral administration of reserpine, recovering in seven days. No prior psychotic episodes were known in these cases. R. W. P. Achor *et al.*[8] were disturbed by the frequency and severity of depressive states occurring during a controlled comparative study of the crude root and reserpine in the treatment of hypertension. Ten of 58 patients taking 400 mg. of the whole root or 0.4 mg. of reserpine daily became emotionally upset, and three developed severe depression. In contrast to these reports of depression in hypertensive patients, A. Folkson and A. R. May,[9] using reserpine and a rauwolfia extract in psychoneuroses, found that, although the results were generally disappointing, anxiety in association with hypertension was reduced: out of 75 patients treated 6 were improved, and 3 of these were hypertensive.

Thus reserpine and rauwolfia, sedative and innocuous in small doses in most patients, may excite adverse reactions, increasing the vulnerability of persons susceptible to depression or to giddiness, fainting, and the like. The frequency and severity of such reactions constitute a major contraindication to the indiscriminate and unsupervised use of these drugs. In last week's *Journal* (p. 1327) Dr. H. Margulies reported unpleasant side-effects in a woman who was taking a drug containing an extract of rauwolfia which she had seen advertised. Fortunately the manufacturers have since decided to stop the public advertising of this remedy. The dosage of reserpine should preferably not exceed 1 mg. a day, and during prolonged therapy should be gradually reduced to the minimum amount that will produce satisfactory control of blood pressure. Close observation of the patient is essential whenever a history of previous psychiatric disorder is obtained, and the dose should be reduced or therapy temporarily discontinued if patients complain of excessive fatigue, loss of initiative, or nervousness.

[1] Glynn, J. D., *J. Neurol., Neurosurg., Psychiat.*, 1955, **18**, 225.
[2] Wilkins, R. W., *Ann. N.Y. Acad. Sci.*, 1954, **59**, 36.
[3] Freis, E. D., *New Engl. J. Med.*, 1954, **251**, 1006.
[4] Wallace, D. C., *Lancet*, 1955, **2**, 116.
[5] Smirk, F. H., and McQueen, E. G., ibid., 1955, **2**, 115.
[6] Muller, J. C., Pryor, W. W., Gibbons, J. E., and Orgain, E. S., *J. Amer. med. Ass.*, 1955, **159**, 836.
[7] Schroeder, H. A., and Perry, H. M., ibid., 1955, **159**, 839.
[8] Achor, R. W. P., Hanson, N. O., and Gifford, R. W., jun., ibid., 1955, **159**, 841.
[9] Folkson, A., and May, A. R., *British Medical Journal*, 1955, **2**, 1121.

# *EMERGENCIES IN GENERAL PRACTICE*

# HAEMORRHAGE IN THE NEWBORN

BY

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Bleeding in the newborn may occur at almost any site—in the skin, mucous membranes, bowel, lungs, retina, kidneys, adrenals, within the brain substance or subdurally, or into the peritoneal cavity. The haemorrhage may be so insignificant when it occurs that it passes unnoticed, or it may be so severe that it is rapidly fatal.

Chronologically the first haemorrhage which may be encountered occurs during delivery in cases where there is a rupture of vasa praevia (abnormally placed vessels) in the placenta, or premature rupture of the placenta; this constitutes a true emergency, the infant being born partially or even largely exsanguinated. The source of haemorrhage is not evident on examining the infant, the striking feature being the intense pallor and shock. There is often an unusual amount of haemorrhage during the second stage of labour. The condition may be wrongly diagnosed as "asphyxia pallida"; in this, however, there has usually been difficulty with the delivery, and despite the infant's pallor the mucous membranes are not blanched. The infant with haemorrhage is flaccid and pale solely from blood loss. Treatment must be an immediate blood transfusion. The infant should be sent into hospital at once. If this is impossible the prognosis is very grave, for the general practitioner is unlikely to have the necessary experience, or apparatus, for transfusion into the umbilical vein, which is the quickest and easiest method.

The marked pallor and anaemia associated with haemolytic disease—"anaemia gravis"—is not usually evident for 48–72 hours after birth, but it may occur earlier. The antenatal history should give warning of this possibility. The spleen is usually enlarged in anaemia gravis, and this is an important differentiating sign.

## Haemorrhagic Disease of the Newborn

Haemorrhagic disease of the newborn is not uncommon, and may, if untreated, be fatal. It occurs most frequently between the third and sixth days of life, but it may on occasions appear earlier—even within 24 hours of birth. The usual evidences of bleeding are haematemesis, melaena, vaginal haemorrhage, and oozing at the umbilical stump, but there may be intracranial bleeding as well. Haemorrhage from the kidneys may also occur, and the colour of the urine may vary from deep red to pink. A common error is to consider any pink staining of the napkin as being due to blood when in fact it is more often due to coloured urates from the uric acid crystals which are found in most newborn infants' kidneys before renal secretion is fully active. Blood is nearly always darker than the pink urate colouring; if the stained napkin is held over a sink and some boiling water poured gently over it the pink stain of uroerythrin disappears completely.

Haemorrhagic disease is associated with a deficiency of prothrombin, the blood level of which is physiologically lowered during the first week of life. The degree of hypoprothrombinaemia depends to a large extent on the maturity of the liver, for the liver is the site of prothrombin formation. But hypoprothrombinaemia is not the only factor, for the condition is a seasonal one, with maximal incidence in the spring, whereas there is no seasonal variation in the prothrombin blood levels. There is, however, a seasonal variation in the permeability of the capillaries, which suggests that two factors are involved: vitamin K, which is essential for the synthesis of prothrombin, and a permeability factor, possibly vitamin C. (The position of vitamin P is uncertain at the moment.)

## Treatment

Treatment of haemorrhagic disease of the newborn consists in the prompt administration of vitamin K—1 mg. of an aqueous solution of the vitamin analogue, such as menadoxine, given intramuscularly, and repeated if necessary in eight hours, will usually be sufficient to control the condition. It is important not to use the natural vitamin, which is fat-soluble, for it leads to abscess formation in many cases, whereas the aqueous synthetic analogue is free from this unpleasant complication.

If blood loss has already been considerable a transfusion is indicated, but as the blood must be given intravenously to be effective, and there is not the extreme urgency that exists in the exsanguinated infant previously described, transfer to hospital is always advisable. An occasional gastric lavage may help to clear the stomach after haematemesis, but is rarely necessary. This may be done very simply by passing a small rubber catheter through the infant's mouth into the stomach and running in slowly an ounce (28 ml.) of normal saline from an ordinary 5- or 10-ml. syringe with the plunger removed, the nozzle being attached to the end of the catheter. After a few minutes the stomach contents are aspirated with the same syringe with the plunger *in situ*. If the returning fluid is greatly discoloured a further ounce (28 ml.) may be run in and aspirated. When the catheter is being removed it should be firmly pinched and withdrawn quickly.

Feeding need not be interrupted. Melaena tends to cause diarrhoea, but this requires no treatment, for it ceases spontaneously when all the blood has left the bowel. A few feeds of suitably modified cow's milk* may be beneficial in increasing the bacterial synthesis of vitamin K in the bowel, but breast-feeding should not be discontinued.

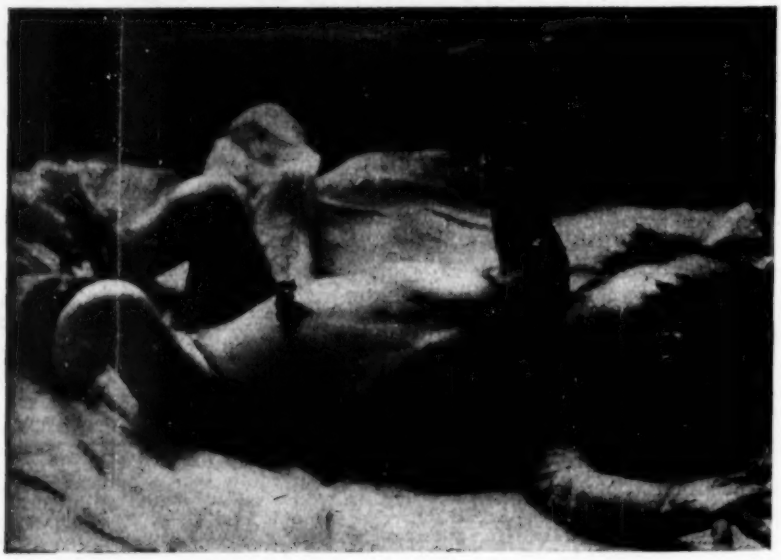
Considerable controversy has arisen concerning the advisability of prophylactic administration of vitamin K routinely—either to the mother during the last weeks of pregnancy (orally) or in the hours just preceding delivery (intramuscularly), or to the infant immediately after birth. Those with the largest experience of this routine prophylaxis are satisfied that it helps reduce the incidence of haemorrhagic disease, but many authorities remain unconvinced. If it is to be used it would be more logical to give the infant a combination of vitamin K (1 mg.) and vitamin C (50 mg.).

## Differential Diagnosis

Firstly, true bleeding must be distinguished from spurious haemorrhage—that is, the appearance of altered blood at the mouth or nose or per rectum, the result of blood swallowed during delivery or from the mother's nipple after suckling has begun. Spurious haematemesis and melaena require no treatment.

Unless the stools are carefully examined and the change of colour of the meconium from its normal greenish black

*Half-cream national dried milk, two teaspoonfuls to 2 oz. (57 ml.) of water with half a teaspoonful of sugar; or, where dried milk is not available, boiled cow's milk 1 oz. (28 ml.), water 1 oz. (28 ml.), and sugar half a teaspoonful. This may be given three-hourly for three or four feeds.



Normal sequence of events in the Moro reflex: The top picture shows the infant lying quietly; the others show the response to sudden noise: the infant's arms are extended, the fingers are separated, and the embrace attitude is assumed. These illustrations are from *Paediatrics for the Practitioner*, Vol. 1, edited by W. Gaisford and R. Lightwood. Butterworths, London. 1953.

to the reddish black tarry melaena stool is appreciated, haemorrhage from the bowel may be missed, with dire results. The tarry stool is quite unmistakable to those who have ever seen one. In cases of doubt a benzidine test will differentiate.

*Haemorrhage from the umbilicus* occurs in haemorrhagic disease as a continual oozing from the stump. The loss of blood may be considerable. Such haemorrhage may also be due to faulty ligature, but this is extremely rare, the vessels closing very rapidly. It is more likely to be due to some associated blood dyscrasia such as congenital afibrinogenaemia; very rarely it is due to haemophilia. Trauma and infection may also be responsible. Treatment consists in religaturing and in the application of a gauze pad soaked with some styptic solution such as thromboplastin. Transfusion should be given if the loss of blood has been severe, and any other underlying cause should be treated appropriately.

In the "genital crisis"—the name given to those phenomena which result from the carry-over of maternal hormones to the infant—*vaginal haemorrhage* may occur. It is a benign condition and requires no treatment whatever. Its relevance to haemorrhagic disease of the newborn concerns the vaginal bleeding, which may be thought to be due to that disease. In the genital crisis the amount of blood loss is slight and there is always an associated swelling of the breasts. In haemorrhagic disease there need be no breast swelling (though, of course, there may be if the genital crisis is also present). Haemorrhage from the vagina as the *only* manifestation of the haemorrhagic diathesis is rare. Both conditions are evident from the third to the sixth day of life. In any case of doubt vitamin K should be given.

Frank *haematuria* occurs in thrombosis of the renal vein—a rare complication of sepsis neonatorum. In this condition the infarcted kidney is easily palpable. An infant so affected is extremely ill, much more so than an infant with the ordinary haemorrhagic disease. If the condition is unilateral, nephrectomy may offer a prospect of recovery. Any infant with haematuria in whom a mass is felt in the abdomen should be sent to hospital immediately.

### Haemorrhage in Premature Infants

The premature infant, because of the immaturity of development of some of the blood vessels—particularly those lying in the subependymal area around the ventricles in the brain—is liable to intracranial haemorrhage with rupture into the ventricle, which is rapidly fatal. In small premature infants with relatively immature liver function some hypoprothrombinaemia is inevitable, and this, together with the

"physiological" weakness of the blood vessels, makes haemorrhage more likely to occur. In all premature infants, therefore, vitamin K (with or without vitamin C) is recommended as a routine.*

Retinal haemorrhages occur in a great many premature and in some full-term infants, and the cerebrospinal fluid usually contains at least a few red blood cells, but happily they generally disappear spontaneously and cause no symptoms.

### Birth Trauma and Haemorrhage

Trauma is a major cause of haemorrhage in the newborn, particularly if it be associated with any marked degree of anoxia during delivery.

*Intracranial haemorrhage* is the most important and most serious, but it must be remembered that by no means all such haemorrhages are the result of trauma, particularly in premature infants. The signs of intracranial haemorrhage are convulsions, drowsiness, twitchings, fever, cyanotic attacks or unusual pallor, periods of irregular gasping respiration or apnoea, high-pitched cry, failure to suck, vomiting, neck stiffness, and a bulging or boggy fontanelle. The Moro reflex is absent (see Figure). This is a most valuable diagnostic reflex. In the normal newborn infant a sudden sharp sound, such as clapping the hands or bringing a hand down smartly on the mattress, will elicit the reflex, which consists in a symmetrical extension of the arms in a circular way with fists half-clenched, as if the infant were trying to embrace something. Asymmetry of this reflex—that is, the movements being confined to one arm—is characteristic of a fractured humerus or clavicle or of Erb's palsy, but absence or irregularity is typical of intracranial damage, and particularly of haemorrhage. It may also occur in heavily narcotized infants and in shock unassociated with haemorrhage. Return of the reflex is a sign of recovery.

Any of these signs may become evident from 12 hours after birth onwards, usually within 72 hours, except in premature infants, in whom the onset of signs may be delayed for a week or more.

Treatment consists in ensuring a clear airway, raising the head and shoulders on a pillow (or raising the head of the cot), absolute quiet, and avoidance of bright light. Phenobarbitone, ¼ to ½ gr. (11–16 mg.) is a valuable sedative, and this dose may be repeated as necessary if twitchings or convulsions occur. Magnesium sulphate in 50% solution, 0.5 ml. intramuscularly, may also be used to lower the intracranial tension; the injection may be repeated eight-hourly if necessary. Oxygen may be helpful if cyanosis or gasping respirations persist. Tube-feeding will be necessary in severe cases. In all cases, if vitamin K has not been given, this should be a routine treatment in the hope of preventing the bleeding from spreading. There is no indication, either diagnostic or therapeutic, for lumbar puncture.

Despite all these measures death is inevitable in the more serious cases, and mental and physical (spastic) sequelae are unfortunately not rare in some of those which recover.

A particular form of traumatic haemorrhage in the newborn is the *subdural haematoma*. This is by no means rare, and, as early treatment can lead to cure without surgical intervention in many cases (whereas if diagnosis is delayed for some weeks operative procedures are necessary to effect a cure), the condition should always be borne in mind. Most subdural haematomas are bilateral and occur in the parieto-frontal regions. Trauma and anoxia, such as may accompany difficult breech delivery or prolonged second stage of labour, are the common aetiological factors, and hypoprothrombinaemia may also be contributory. The outpouring of blood becomes encapsulated and rising osmotic pressure causes a gradual increase in size of the collection of fluid, leading to pressure signs; these are vomiting and failure to thrive, irritability, fever, a bulging fontanelle, and increase in the circumference of the skull. Twitchings and convulsions may also occur. In any doubtful case the infant should be admitted to hospital for a subdural tap through the fontanelle. If blood is withdrawn this procedure should be repeated daily till no more fluid is obtained. Subsequent treatment will be dictated by the infant's progress.

*See also the article in this series on "Home Care of Premature Children," by Dr. F. J. W. Miller (October 29, p. 1078).

### Cephalhaematoma

One of the commonest haemorrhages in the newborn is subperiosteal bleeding under the parietal pericranium—the cephalhaematoma. This is usually seen over the right parietal bone but occurs on the left side in infants delivered with the right occiput lying to the front. In rare cases a double cephalhaematoma occurs, and very rarely a triple swelling—one over each parietal and the third over the occipital bone. Cephalhaematoma nearly always occurs in first-born infants only. The swelling may reach a considerable size.

It has to be differentiated from a caput succedaneum, an encephalocele, and a fractured skull. Caput succedaneum—the oedematous swelling over the presenting part of the head—is present and maximal at birth and disappears within 24–48 hours. It is not bounded by the suture lines. A cephalhaematoma is not evident clinically till the third day—that is, after the caput has subsided—and the swelling is always bounded by the suture lines. An encephalocele is rare, extrudes through a gap in the sutures, and has an expansile impulse on crying.

The cause of cephalhaematoma is rupture of small vessels under the periosteum from friction as the head moves up and down along the maternal passages. The increase in size of the swelling, which commonly occurs during the first week, is due to the rise of osmotic pressure within the haematoma and possibly to some degree of hypoprothrombinaemia also. It is interesting that such cases seldom have any underlying intracranial haemorrhage. A large and increasing swelling may tempt the doctor to aspirate it, but this temptation should be resisted. The mother can confidently be reassured that it will disappear spontaneously in the course of days or weeks, and only on very rare occasions does a permanent swelling persist. Calcification occurs in many of the largest haematomas, and this may be palpable or seen radiographically. The sensation of irregularity, and sometimes of crackling, produced may suggest a fracture. *X*-ray examination will clearly differentiate between them. When routine radiographs of the skull are taken a week after birth it is found that cephalhaematomas are much commoner than is generally realized. Many that are evident radiologically are missed clinically.

### Other Haemorrhages

*Intra-Abdominal Haemorrhages.*—Some of the most severe haemorrhages are intra-abdominal and are associated with trauma during delivery or excessive attempts at resuscitation. The organs particularly involved are the liver and the adrenals. Damage to the liver leads to the formation of a subcapsular haematoma, and, if this is extensive, rupture into the peritoneum with rapidly fatal haemorrhage may result. Adrenal haemorrhage, if bilateral, is also usually fatal, the infant dying in shock.

*Skin Haemorrhages.*—Skin haemorrhages, petechial or purpuric, may be localized or widespread. Local petechiae are usually due to trauma together with some degree of anoxia. They are found around the head and neck particularly and around the scrotum and legs in infants delivered by the breech. Male breech babies may also occasionally develop a haematocele. No treatment is required. Generalized petechiae or purpura may be a manifestation of thrombocytopenia; in such cases the mother is often found to have thrombocytopenia also—usually symptomless. Spontaneous recovery is the rule after a week or two, the platelet count rising to normal. Congenital leukaemia is a very rare cause of such bleeding. Cytomegalic inclusion disease (generalized salivary-gland virus infection) is another rare cause, but an affected infant is usually jaundiced and has an enlarged spleen. Severely

affected infants with icterus gravis from rhesus incompatibility may show quite extensive petechiae, and the prognosis in such cases is not good. Capillary naevi should not be confused with skin haemorrhages. They are common, especially around the eyelids, forehead, and occiput, though they may occur elsewhere. Most of them disappear spontaneously.

*Haemorrhage from the Lungs.*—This is usually a terminal event in pneumonia or septicaemia. Pink frothy fluid may flow from the mouth or nose in an almost continuous stream. Treatment is not likely to be of any avail, but intensive chemotherapy should be tried.

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**Next article on Emergencies in General Practice.**—"Ocular Emergencies," by Mr. H. B. Stallard.

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# THE REGISTRATION OF CANCER IN DENMARK

BY

**Sir ERNEST KENNAWAY, D.M., D.Sc., F.R.S.**

*From the Department of Pathology, St. Bartholomew's Hospital, London*

The data collected in Denmark, Norway, Finland, and Iceland should be of great value in the study of cancer. The various Scandinavian peoples, while fully aware of each other's defects, show no great differences in race and religion such as beset similar inquiries in some countries—for example, India. The first three of these countries have Cancer Registration in operation (since 1942 in Denmark, 1952 in Norway, and 1953 in Finland), and in Iceland data from the whole country are collected by Professor Dungal (1955). During my visit to Denmark in June of this year, Dr. Johannes Clemmesen, Director of the Danish Cancer Registry, was preparing for a conference of representatives from all countries which have adopted Cancer Registration, to be held in Copenhagen in the latter part of that month.* The low atmospheric pollution in all these Scandinavian countries should assist in deciding whether this factor plays any part in the causation of cancer.

## Denmark

Denmark lies between the latitudes, roughly, of Newcastle and of Inverness, and hence escapes the long duration of darkness in winter which is an important factor in the northern Scandinavian countries. It has no mountainous and thinly populated districts such as those in Norway, for instance, which are remote from hospitals and facilities for medical treatment. Practically all the country that is not urban is agricultural, and the populations of Copenhagen, of other urban areas, and of the rural districts are, roughly, 1 million, 1 million, and 2 millions. This simple ratio facilitates inquiry into the all-important question of the prevalence of cancer under urban and rural conditions. If the number of deaths from, or registered cases of, any form of cancer in these three classes of area depart widely from a 1:1:2 ratio one has an indication for more exact inquiry. Since modern medical treatment is available to the whole population, the data collected by the Registry should be of great value in seeking for the reason of differences between town and country in the incidence of the various forms of cancer (Clemmesen, 1951a, 1955).

A peculiarity of the national smoking habits is of some interest: some women smoke cigarillos (small cigars weighing about half as much again as a cigarette); I brought back some cigarillos and cigarettes for estimation of their arsenic content.

## Copenhagen

Dr. Clemmesen has an intimate knowledge of Copenhagen, his native city, and is well qualified to judge of the differences in the incidence of cancer of various organs in the different districts, and of the factors, ranging from cosmic radiations to part-time prostitution, which have been suggested in explanation of these differences. He finds that the frequency of cancer of the cervix uteri, and of the lung in males, ranges in inverse proportion to house rent (Clemmesen, 1951b).

In the more modern parts of the city, especially towards the north, one is impressed by the width of the streets, and by the generous areas allotted to squares, museums, and hospitals, and from almost every point one can see trees, in avenues, parks, and gardens. The eastern side of the city abuts on the Baltic, which stretches ten miles to the coast of Sweden. The older parts are of course more densely occupied, and smoke from the railway, factories, and a power station is perceptible, but everywhere the city gives an impression of cleanliness to anyone familiar with the larger cities of Britain. "Smoke papers" were being collected daily at four stations, and these are examined at the Fuel Research Station at Greenwich for degree of blackness, and in Professor Blacklock's department at St. Bartholomew's Hospital for hydrocarbons by Mr. J. M. Campbell, B.Sc., and for arsenic by myself. The four stations are situated, one in the more industrial south-western quarter, two in the older parts of the middle of the city, and one in the northern area, Gentofte, a district of high rents and large gardens. We had noted consistent differences between the smoke papers from the four stations, of which we in London knew nothing but their names, and it was interesting to note, when one visited the stations, that these differences were very much what one might expect from the general character of the localities. One may perhaps mention, to illustrate the pleasant character of Gentofte, that just as the funnel projecting from a window to collect suspended matter came into view one heard, for the first time this year, the note of a willow-wren, a bird whose song in England had been discouraged by the cold spring.

Mr. D. S. Teglbjaerg, of the Institute of Hygiene, collected for us from a neglected window-ledge about 50 g. of dust which we have brought home for analysis, and some similar material was obtained for us at Professor J. Engelbreth-Holm's Institute of Pathology.

Domestic heating is carried out chiefly by coke burned in stoves, or in the central water-heating plants of flats; the coke is produced in the local gasworks, from coal imported from Britain, Poland, and Germany, and the gas is consumed for cooking and in gas fires. Small amounts of coal are used for starting coke fires. In the richer districts, such as Gentofte, the central heating of individual houses is effected by oil-fired boilers, the oil being imported from the U.S.A. or South America. One power station in Copenhagen is diesel-engined. Since the last war there has been a tendency to conserve peat, which is the only indigenous fuel and has been used only in wartime.

* About 70% of cases of cancer in England and Wales are now registered under a scheme initiated by the General Register Office, but these are not necessarily representative of the whole "cancer population."

Dr. Clemmesen took us to a meeting of the committee of the Danish Medical Association that is concerned with lung cancer problems under the chairmanship of the Professor of Hygiene, Dr. Bonnevie, and I was able to say something in support of a proposed inquiry into smoking habits in Denmark. Dr. Clemmesen hopes to associate with this investigation a study of the histological types of cancer of the lung, such as has been carried out by Professor Kreyberg in Norway, and he estimates tentatively that the occurrence of different types in the same tumour causes serious difficulty in classification only in about 5% of cases.

### The Danish Cancer Registry

The Danish Cancer Registry is conducted for the purposes of research on a purely voluntary basis with support from the public health authorities, who grant housing accommodation, and from the State Office for Statistics, which gives facilities for mechanical (Hollerith) tabulation.

Dr. Clemmesen describes the origin of the Registry as follows:

"In 1937 Kennaway and Kennaway made a review synthesizing experimental and statistical evidence on carcinogenesis. It appeared from their paper—reviewed in *Hospitalstidende* 1938—that mortality statistics from England and Wales had revealed differences in mortality from cancer between various social classes" (the data in question were those of the Registrar-General, London), "and it lay near to examine whether corresponding results could be produced on the basis of Danish death certificates. Contrary to the expectations of the author, subsequent studies on cancer mortality among Danish breadwinners of various occupations confirmed that also in Denmark differences could be demonstrated between certain occupational groups, and between the capital, provincial towns, and rural areas. It was clear, however, that, inspiring as such mortality studies may be, they cannot compare in accuracy with studies on cancer morbidity, primarily because progress in therapy will tend to make mortality statistics increasingly inadequate as a measure of the real incidence of this group of diseases, and it was therefore suggested by the author that a continuous registration should be made of all cases of cancer in the Kingdom of Denmark, based on reports from pathologists and surgeons, supplemented with the information available from death certificates."

The Registry was set up on May 5, 1942, by a committee of the National Cancer League, with Professor J. Engelbreth-Holm as chairman. Dr. Johannes Clemmesen was appointed Director, and his staff now consists of a half-time actuary, Mr. Arne Nielsen, and five clerks and typists.

"At the opening of the Registry it had been decided to collect information on all cases of cancer admitted to hospital or treated as out-patients as well as information on all autopsies performed on patients suffering from malignant disease. Under the assumption—which in Denmark is quite safe—that no patient will be cured of malignant disease without visiting a hospital, it was decided not to approach practising physicians for information on patients, since it was realized that it would hardly be possible in this way to obtain better information than that already available from death certificates, which through the courtesy of the National Health Service had been made accessible to the Cancer Registry."

"Since in Denmark cancer is not a reportable disease, all hospital services were approached and agreed to notify cases of malignant disease to the Registry at a token fee of 1 krone for each, as a symbol that notifications would be appreciated and not just shelved."

The great majority of hospitals are public and practically free of charge; the number of private clinics is negligible. About 85% of the population are members of the Health Insurance and are admitted to hospitals free of charge, while the remaining 15% are charged about 3s. a day.

The Registry now possesses data for about 100,000 cases of cancer. The oldest living person on the records is aged 105; in earlier life he was operated upon for cancer of the skin. "Danish death certificates are legal documents practically always issued or verified by doctors."* Cancer of the cervix is in Denmark almost always treated in hospital, while "the diagnosis of gastric carcinoma is often made without the use of modern diagnostic methods." Forty-eight per cent. of deaths from cancer take place in hospitals. The number of cases notified yearly is about 10,000, and of deaths about 8,000. The difference is due in part to cases of cancer of the cervix and of the skin, and a large proportion of these will be on the records of the three radium hospitals which the National Cancer League itself provided, at which 2,800 cases of cancer are treated yearly. Every year several hundred cases appear on death certificates which had not been notified by the hospitals concerned, and these cases are made the subject of inquiry.

Dr. Clemmesen had always been opposed to the predominant use of the records for the comparison in detail of different methods of treatment, as this activity tends to swamp all others; the register is intended to serve as a key for investigators to the raw material available upon many aspects of cancer.

Dr. Clemmesen took much trouble in making our visit useful and enjoyable in every way. We are indebted also to Dr. J. Engelbreth-Holm, Professor of Pathology, to Mr. Arne Nielsen, of the Cancer Registry, and to Dr. Bonnevie and Mr. D. S. Teglbjaerg, of the Institute of Hygiene, for help and information upon various matters.

### Some Notes of Travel

Dr. Sjölin took us in his car, with Dr. Clemmesen, to Trelleborg, a very strong Viking fortress dating from about A.D. 1000. Each wooden house could provide quarters for the crew of a Viking longship. One of these houses has been reconstructed and shows the stone-paved hearth in the middle of the great hall; the smoke escaped through an opening in the roof. This arrangement, familiar to readers of the Icelandic sagas, persisted to the present day in farmhouses in Iceland (Blacklock *et al.*, 1954), of which Professor Niels Dungal, of Reykjavik, has given a first-hand description; he obtained for us soot from the walls of one of these houses, which was found to contain 3 : 4-benzpyrene.

On the way back from Trelleborg to Copenhagen we were entertained at tea by Dr. Claus M. Plum and his wife, who superintend a colony of epileptic children, among them some Eskimos from Greenland. If one reads the Heimskringla Saga of Snorre Sturlason,† with its stories reminiscent of the Old Testament—for example, Deuteronomy ii. 32–5; iii. 5–7; Judges xx. 48; II Samuel xii. 31—of merciless slaughter and plunder, one may reflect that, to the men of Trelleborg, this transport of children of another race over 2,000 miles for their own good would have been unintelligible.

In Copenhagen it is instructive to go to a cafeteria, of the same class as a Lyons restaurant in London, and see what items are in most demand. One can there obtain alcoholic drinks in bottles, but the commonest drink, as in Finland and Iceland, seems to be milk. A favourite dish is Frankfurters, dyed an intense scarlet, together with a very attractive mixture of potato, apple, and onion reminiscent of the squab pie of Devonshire. Sandwiches take the "open" form, of which one restaurant claims to provide 100 varieties.

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* In the rural areas only, a few death certificates, amounting to about 0.1% of the whole, are issued by coroners.

† A translation is available in "Everyman's Library."

# THE DEATH PENALTY

## HUNTERIAN SOCIETY DEBATE

The Hunterian Society staged its annual debate at the Apothecaries' Hall on November 21, with Mr. A. DICKSON WRIGHT, the President, in the chair, the proposition before the meeting being "That capital punishment remains a necessity in modern society." In support of the proposition was a Lord Justice of Appeal and a psychiatrist, and on the other side a former Home Secretary and another psychiatrist.

### Society's Denunciation of Crime

Lord Justice DENNING, the first speaker on behalf of the motion, declared that the M'Naghten Rules needed bringing up to date. He cited several cases which had come before him for trial which showed that they needed modernizing, as did also the law relating to provocation. With the position thus made clear, then murder could be confined to cases of "murder most foul," for which capital punishment remained a necessity in a civilized society. Punishment was the way in which society expressed its denunciation of wrongdoing: and, in order to maintain respect for law, it was essential that the punishment inflicted for grave crimes should adequately reflect the revulsion felt by the great majority of citizens for them. The ultimate justification of any punishment was, not that it was a deterrent, but that it was the emphatic denunciation by the community of a crime: and from this point of view there were some "murders most foul" which demanded the most emphatic denunciation of all—namely, the death penalty.

Mr. J. CHUTER EDE, who was Home Secretary from 1945 to 1951, led for the opposition. He reminded the meeting that a judge of a former day might have spoken with equal vehemence about the necessity of maintaining the extreme penalty for minor crimes. The question to be borne in mind was whether the criminal at the time he committed the murder, or at the time of his examination, was sufficiently insane to be certified. "You cannot argue with doctors; you can speak in front of them, and they allow you to do so, but you cannot argue with them." He believed that he who did wrong should be punished. The trouble came when one had to decide on a form of punishment which was irrevocable. The present Lord Chancellor had said in the House of Commons in 1948 that no man not guilty of murder had been hanged. He rather gathered that the Lord Chancellor was now in a minority of one after the case of Evans.

### Home Office Review

Mr. Ede said that when he went to the Home Office he found that the same two doctors always examined the man who had been convicted. He therefore asked for the addition of a third doctor taken from a panel so that they should not always be the same two going through the same routine. A third doctor was added, though he did not know that this had made any difference. He himself was supplied with all the speeches made at the trial, and other documents, but one document was always withheld—namely, the final speech for the defence, containing doubtless the best that could be said for the man from the point of view of the defence. The man who made the final decision—the Home Secretary—certainly ought to have that before him. During his Home Secretaryship, apart from two men whom he named, he made bold to say that, having read all the papers carefully, if he had gone to the man on the morning he committed the crime and had said, "To-day you will commit a crime which will place you in danger of capital punishment," he would have been laughed to scorn. In prison the men who gave least concern to anyone were the reprieved murderers.

Could one always be certain that the last word had been said on this subject? It had been said in the Evans case that no criticism could be levelled against judge or jury, counsel or police, and yet it was now clear that the case on which the conviction was obtained was a false one. Within the past week a Bill to deal with the abolition of capital punishment had been challenged neither by voice nor by vote in the House of Commons when its first reading was sought. That civilization was right in this twentieth century to retain this law was a proposition he could not find it in his heart to support. The question of its retention on the statute book was a matter for the politicians and not for the Civil Servants. The majority of these crimes were committed not by members of what were called the criminal classes but by ordinary human beings subjected to an emotional test to which they were unequal.

### Police Opinion

Dr. W. LINDESAY NEUSTATTER, who seconded the motion, said the more he had studied the subject the more doubtful he was of the right answer, but he refuted some of the abolitionists' arguments. One was the sanctity of human life. In a world making hydrogen bombs, where the cream of youth had to die in war, was only the murderer's life sanctified?

There was no evidence that morbid interest in execution, or that the existence of a death penalty, led to murders. He had seen depressive psychotics who welcomed hanging to expiate their feelings of guilt, but they did not murder in order to be hanged. It might be necessary to satisfy the community's desire for retribution, and to some extent indignation of horrible crimes was desirable. Even if figures did not prove the efficacy of hanging, if the police in their dangerous work felt it was a safeguard due consideration must be given to this. Perhaps the strongest argument of all was that capital punishment marked out murder as different from all other crimes and thus was an unseen influence in our low murder rate.

### Abnormality of Murder

Dr. DESMOND CURRAN, who made the last of the set speeches for the opposition, said that the striking thing about murderers as a class was the very high proportion who were undoubtedly mentally abnormal. In the last 50 years, in 22% of murders known to the police the suspect committed suicide; of those brought to trial 14% were found unfit to plead, and of those found guilty of the act 39% were found guilty but insane. In England and Wales there were only about 150 murders a year, and only 12 to 14 individuals were hanged annually. There was no convincing evidence that capital punishment acted as a deterrent, nor would this be likely for such a pathological event as murder.

Another argument against the death penalty was the unfortunate publicity given to these cases and the mistaken view of mental illness that resulted. Very few of even certifiably insane patients were "M'Naghten mad," and yet no one as yet had been able to suggest an acceptable alternative. Putting sentimental feelings on one side, he had no hesitation on practical grounds in declaring himself against capital punishment.

### Heavy Vote for Retention

After some brief remarks by other members, including Dr. HENRY YELLOWLEES and Mr. A. C. ROCHE, Lord Justice DENNING wound up the debate. The proposition that capital punishment remained a necessity in modern society was then put to the vote. About 200 voted, and the motion was carried by a large majority. The dissentients numbered no more than a dozen.

## COUNCIL FOR INTERNATIONAL ORGANIZATIONS OF MEDICAL SCIENCES

### THIRD GENERAL ASSEMBLY

The Council for International Organizations of Medical Sciences (C.I.O.M.S.) held its third general assembly in Paris, on September 30 and October 1 under the chairmanship of Professor R. E. TUNBRIDGE. The C.I.O.M.S., which was founded in Brussels in 1949 under the joint auspices of Unesco and W.H.O., includes among its members most non-governmental international organizations in the medical field. Its purpose is to help the spread of knowledge in this field, and to encourage the use of such knowledge throughout the world.

#### International Congresses and Symposia

Concerned with the present trend of international congresses, the assembly re-examined their function in the light of the changes brought about by specialization and the increased output of scientific research. On the one hand, the more general congresses were becoming too large, and, what was worse, the number of papers read too great. Opportunities for real discussion were all too rare. On the other hand, specialization tended to increase the number of meetings, and these specialized meetings often lost contact with their parent disciplines. International congresses were not the right media for reporting scientific discoveries, but much could be done to improve the opportunities they offered for personal contacts, for disseminating information to a wide international audience, and for arranging international symposia and other activities.

Symposia were defined as carefully prepared meetings at which fifteen to twenty specialists, representing various branches of science, gathered for several days to discuss a clearly defined subject in private or before a small invited audience. They could be held independently, but they were well suited to be organized several days before a congress, a rapporteur bringing to the larger audience of the congress the conclusions of the smaller group. Special symposia could also be organized in countries in the process of development, and constituted an excellent way of stimulating research and thus leading, in the long run, to the better practice of medicine.

Written communications were also discussed, and it was agreed that there was much duplication between indexing and abstracting services. The difficulties of achieving overall co-ordination were stressed, but it was thought that action of limited scope should be undertaken whenever opportunities arose. Standardization of terminology was an important activity that the council would continue to encourage, as it had done in the case of anatomy.

#### Future Policy

The assembly decided to promote through the council's membership a clearer recognition of the present-day functions of international congresses; a flexible co-ordination of congresses of related disciplines; a shift from individual participation to group participation, through pre-congress working parties and symposia, or by the appointment of experts to make digests of related communications; a greater participation of young research workers; and the holding, after a congress, of special international courses for the host country in particular cases.

Regarding symposia, it was decided that the council should continue its policy of organizing symposia on general subjects or specially important areas of research, and that it should stimulate the organization of pre-congress symposia as defined above and scientific meetings in underdeveloped countries. The assembly also instructed the executive committee to explore the possibilities of initiating a programme in geopathology.

# Nova et Vetera

## A CASE OF GYNAECOMASTIA 200 YEARS AGO

Of late years the problems of sex change have become more obvious than heretofore, probably because surgical, hormonal, and psychiatric measures are now available, and also because people are less conscious of their blemish as a stigma to be concealed. However, the person mentioned in the letter below managed to turn his versatility to good account. One might indeed be pardoned for wishing the writer had shown a little less modesty and a little more observation, from which we might have verified the story and deduced the interplay between the differing aspects of sex.

The extract is from a letter of the Bishop of Cork to the Earl of Egmont, F.R.S., in the year 1738, and reads as follows:

"And now that I am engaged in writing, I will venture to give an Account of a Man that I met at Inishanan, about 10 miles from this Place. He was an old Man about 70 years of Age, by Birth a Frenchman, but was a Refugee on account of his Religion, was bred a Gardener, and, by all Accounts, had been industrious, till deprived of his Strength by Age.

He asked me for Charity, and I gave him half a Crown. I mention this particular, that the remaining Part of the Story may not seem to be told for the sake of Gain. After I had done this, and was gone into the House, I heard a Noise at the Door: The Man, out of Gratitude, had returned to shew me a Curiosity, which was that of his Breasts, with which he affirmed he had once suckled a Child of his own: His wife, he said, died when the Child was about Two Months old: The Child Crying exceedingly while it was in Bed with him, he gave it his Breast to suck, only with an Expectation to keep it quiet; but, behold, he found that the Child in time extracted Milk; and he affirmed, that he had Milk enough afterwards to rear the Child. I looked at his Breasts, which were then very large for a Man; but the Nipple was as large or larger than any Woman's I ever saw. Some Ladies were then passing by, so I sent him off in Haste, and have not seen him since."

D. O'CONNELL.

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*Philosophical Transactions*, 1740, 1741. Vol. XLI, Part II.

## LOCAL MEDICAL SOCIETIES

### NORTH OF ENGLAND OTOLARYNGOLOGICAL SOCIETY

At the ninth annual meeting at Harrogate on October 1 the society's prize of 50 guineas for original work in otolaryngology was awarded to Mr. ROBERT W. BAILLIE, of Paisley, for his paper on "Lermoyez's Syndrome"; he will receive the prize at the society's next meeting on March 24 at Newcastle. Fifty-two members of the society attended a demonstration of clinical cases at the Harrogate Hospital.

### ILFORD MEDICAL SOCIETY

The opening meeting of the society's golden jubilee session, on September 27, consisted in a discussion with the Northern Home Counties Faculty of the College of General Practitioners on "The Future of General Practice." Dr. G. O. BARBER, himself both a general practitioner and a lecturer in general practice to St. Mary's Hospital Medical School, pointed to the enormous gap between what is taught in hospitals and what happens in general practice. Unless young doctors were taught about practice, what each G.P. had learnt personally in the cause of a lifetime's work would be lost. Dr. STEPHEN TAYLOR, from his experience with the Nuffield Provincial Hospital Trust, discussed health centres, and Dr. STANLEY THOMAS, secretary of the East Ham local medical committee, liaison between general practitioners and the local authority.

# Correspondence

*Because of the present high cost of producing the Journal, and the great pressure on our space, correspondents are asked to keep their letters short.*

## Protection of Infants Against Tuberculosis

SIR,—All concerned with the prevention of tuberculosis will have read Professor Wilfrid Gaisford's Leonard Parsons lectures (*Journal*, November 5, p. 1101, and November 12, p. 1164) with interest and profit. Apart from the routine vaccination (against tuberculosis) of the newborn in maternity hospitals, he believes it "should at present be reserved for infants who are known to come from, or be going to, tuberculous households," and suggests that "*maternity and child welfare doctors* . . . could be trained to undertake this special work . . ." (my italics). In many, if not in most, areas chest-clinic physicians are already vaccinating this latter group. The clinic physician, by his personal knowledge and from information supplied by his tuberculosis health visitors, is surely best placed to know which are the tuberculous households. Professor Gaisford himself reports a case on p. 1165 where information about a phthisical patient who had taken his discharge from sanatorium against advice was withheld by an infant's mother, though known to the tuberculosis authorities.

The disadvantages of divided responsibility imposed on the tuberculosis service in 1948 have been to some extent mitigated by the improved chest-clinic service, which integrates prevention and treatment. The routine administration of B.C.G. in maternity hospitals may well be left to paediatricians. It appears from his writings that Professor Gaisford has established in Manchester an organization having a special interest in, and responsibility for, the protection of infants against tuberculosis, but for most of the country the special task of protecting infants in tuberculous households will continue to be part of the tuberculosis control programme already successfully undertaken by chest clinics.—I am, etc.,

St. Albans. T. A. W. EDWARDS.

## Cortisone in Practice

SIR,—We must all be grateful to Professor D. M. Dunlop for his beautifully clear and succinct article on "Cortisone in Practice" (*Journal*, November 19, p. 1263).

May I draw attention to one small point, modification of which might cause considerable saving? Professor Dunlop states: "Hydrocortisone has also been usefully employed locally . . . incorporated in an ointment containing 2.5% of the drug." Most dermatologists would, I think, agree that an ointment containing 1% hydrocortisone is nearly always as effective as the 2.5% ointment in the conditions quoted by Professor Dunlop. The cost of the 1% ointment is slightly less than half that of the 2.5%.—I am, etc.,

Lincoln. ERIC RITTER.

## Cortisone in Ulcerative Colitis

SIR,—In their article on the use of cortisone in ulcerative colitis (*Journal*, October 29, p. 1041), Dr. S. C. Truelove and Professor L. J. Witts mention local applications, but it is not clear whether this includes the use of hydrocortisone in the form of retention enemata. Although our experience is as yet too small and the time too short to make any definite statement, it does seem to me that this offers the best hope of recovery that we have yet had. One or two cases have been dramatic in their improvement and certainly more favourable than those I have seen from systemic cortisone.—I am, etc.,

Romford, Essex. DOUGLAS PARK.

## Fibrocystic Disease of the Pancreas

SIR,—The leading article on fibrocystic disease of the pancreas (*Journal*, August 6, p. 367) and the article by Dr. James H. Hutchison (p. 339) together provide a useful review of the subject. It should, however, in the cause of historical accuracy, be pointed out that Dr. Margaret Harper, of Sydney, Australia, whose name is not mentioned in either article, in 1930 described two cases of this disease under the title, "Two Cases of Congenital Pancreatic Steatorrhoea with Infantilism."[1] Although a case of the same disease had been reported in 1924 by Clarke and Hadfield, of Bristol,[2] Margaret Harper made clear the distinction between it and coeliac disease. This she did in 1930[3] and again in March, 1938, when she described eight personal cases under the title, "Congenital Steatorrhoea Due to Pancreatic Defect."[4] Dr. Dorothy Andersen's study was published in August, 1938.[5]

Dr. Harper's priority is generously recognized by Charles D. May, who has dedicated his book on *Cystic Fibrosis of the Pancreas in Infants and Children*[6] to Margaret Harper and to Arthur H. Parmalee, of Chicago, who described two cases of the disease in 1935.[7]—I am, etc.,

Sydney, Australia. F. J. BROWNE.

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3 Harper, M. H., *Med. J. Aust.*, 1930, 2, 663.
4 —— *Arch. Dis. Childh.*, 1938, 13, 45.
5 Andersen, D. H., *Amer. J. Dis. Child.*, 1938, 56, 344.
6 May, C. D., *Cystic Fibrosis of the Pancreas in Infants and Children*. 1954. Springfield, Ill.
7 Parmalee, A. H., *Amer. J. Dis. Child.*, 1935, 50, 1418.


## Combined Immunization

SIR,—Dr. G. V. Feldman's recent letter (*Journal*, October 22, p. 1031) suggests that it would be unwise to discard a useful prophylactic agent (combined) "on the strength of reported complications which may have been caused by faulty technique." My letter (*Journal*, October 1, p. 850) was not intended to suggest abandoning the use of combined prophylactics but rather to point out that the present choice is between that of convenience—that is, three inoculations as compared to five—as against the increased efficacy and safety of the separate prophylactics. With the developments in combined vaccines, it is likely that both these problems are well on the way to solution so that no such dilemma will arise in future years.

Regarding the addition of tetanus antibody to the combined vaccine, I feel that medical men should ask themselves whether this is a serious attempt to prevent deaths from tetanus or whether this is not on the lines of recent bargain offers of detergents—that is, "three antigens for the price of two." It has been recognized by the Army that, to maintain satisfactory protection against tetanus, it is necessary to have an annual booster dose. After primary immunization, a residual sensitivity remains which will be stimulated by booster injections, but, as Dr. Feldman mentions, many of the present cases with trivial injuries never reach a doctor so that these "boosters" will not be available, and there is little protection against the toxin in the absence of circulating antitoxin. Infection stimulates production of antitoxin, but this may be ineffective owing to the time lag.

It is, of course, agreed that serum reactions are a serious problem militating against the use of passive immunization after serious injuries, but, until a universal system of active protection gives satisfactory antibody levels in the population as a whole, the use of serum must be continued—possibly combined with a booster in cases where there is proof of previous tetanus immunization in recent years. Dr. Blyth Brooke's recent investigation[1] has emphasized the difficulties of history-taking. His figures show that 40% of parents do not understand the purpose of injections given to their children.

It should be noticed that, in 1953, there was only one death from tetanus in the 1–5 age group—that is, the age at which the inoculation of infants with "triple antigen" is

likely to have its most potent effect—and, indeed, the decade most at risk in this year was the 60–70 group (14 deaths), at which age it is most unlikely that a primary injection in infancy would have any residual effect. If the problem of tetanus is to be seriously tackled by means of active immunization, then universal immunization with regular booster doses will be necessary, and, while this may be justifiable in certain circumstances and places—for example, wartime—it is not so at present in the United Kingdom.

Wrongly timed and unplanned techniques of immunization produce false confidence in the public mind, so that, when inevitable disillusion occurs, a revulsion from the use of all prophylactics might well follow.—I am, etc.,

Stafford. H. BINYSH.

REFERENCE

1 Brooke, C. O. S. Blyth, "Vaccination Against Whooping-cough," *Monthly Bull. Minist. Hlth (Lond.)*, 1955, **14**, 142.

## Foetal Distress

SIR,—A case recently encountered may be of interest apropos the recent correspondence and your leading article (*Journal*, September 17, p. 726) on foetal distress.

The mother, hypertensive in her second pregnancy, went into labour 14 days "past her date." Nurse sent for me because of meconium copiously discharging, and by the time I arrived the head was being born. The shoulders were delivered with difficulty, and during delivery of the trunk the umbilical cord severed 4 inches (10.2 cm.) from the infant with no apparent undue force. There was no bleeding from either end of the severed cord. The infant, which weighed 9 lb. (4 kg.), was limp, blue, and breathed poorly, but gradually picked up strength, and now, at 3 weeks, appears to be normal. After birth it was noted that the baby's upper arms had many subcutaneous ecchymoses.

The interval between the appearance of meconium and birth of the child was 55 minutes. It would appear that this infant had been seriously deprived of its oxygen supplies for a prolonged period, but in spite of this no special resuscitation measures were required apart from clearing the mouth and nose of sticky mucus and meconium.—I am, etc.,

Sutherland. E. J. R. PRIMROSE.

## Position for Delivery

SIR,—I fear it is Dr. Grantly Dick Read (*Journal*, November 5, p. 1142) who has "widened this discussion," perhaps in an effort to side-track it. My reference (*Journal*, October 15, p. 968) to the left lateral position was incidental and specifically directed to the conduct of labour under anaesthesia, on which native midwifery has no bearing at all.

My letters were—as the title correctly stated—about the "position for delivery," not labour as a whole. Where the perineum is small or rigid it is endangered and the head is delayed by the lithotomy position or any approximation to it, and of course by squatting too. Dr. Kathleen Vaughan (*Journal*, October 15, p. 967) quite correctly says that squatting helps to pull apart the pelvic joints, but my letter was not concerned with the passage of the head through the pelvis but through the perineum—a very different matter but a very important one for the mother. It is indeed so different that from the crowning of the head onwards might well be considered a separate stage of labour. The structures involved are different, the management is different, and the position the woman subconsciously adopts for it is different too. Neglect of these differences results in needless episiotomies and perineal tears.

What I said was nonsense in Dr. Read's letter (*Journal*, October 1, p. 850)—and it is—was specifically his praise of native midwifery "the outcome of trial and error for generations past by peoples skilled and experienced in childbirth without association with modern scientific concepts." The nonsense in this statement is that these people are not, in fact, "skilled" in dealing with abnormalities—as any of his numerous correspondents would have told him—and it does not take much skill to deal with a normal confinement. Worse than nonsense is his implication that "association with modern scientific concepts" is a disadvantage in midwifery. Dr. Read should be ashamed of making it, and he injures his cause by doing so. None of your correspondents over the years has tried more than I to point out and preserve what is good in the practice of "our fathers that begat us," but respect for tradition must not blind us to the enormous benefits modern scientific concepts have brought to midwifery as to the rest of medical practice.—I am, etc.,

Winsford, Cheshire. W. N. LEAK.

SIR,—As a mother and a physiotherapist interested in natural childbirth, I would like to thank Dr. W. N. Leak for his letters on position for delivery (*Journal*, September 17, p. 735, and October 15, p. 968), in which he advocates a modified Walcher position (and not the left lateral, as Dr. Grantly Dick Read (*Journal*, October 1, p. 850) seems to think). Incidentally, is this not the position described in Dr. Read's quotation from Aristotle?

My own experience of childbirth is a very happy one. I have been able to have my three babies at home with only my husband and a doctor friend to look after me, so that I was able to do whatever I found comfortable. When I got to the transition stage and normal activities became impossible, I found that kneeling on all fours with deep sacral massage during contractions was easily the most comfortable. For the second stage I have tried all the usual positions and found them unbelievably uncomfortable, and to be fixed in the lithotomy position must be sheer agony, quite apart from the damage it does to the back. The only position which is comfortable in my experience is the supported dorsal, with legs extended and separated. I discovered this with my first baby, and was amazed at the relief of the very unpleasant sensations as the head stretches the perineum, and also at the effortless delivery. I do not think this caused my attendant more inconvenience than other positions.

I have tried squatting and can well imagine that this speeds labour up if necessary, but my second stage was always short, and my feeling was that it would precipitate delivery and cause a tear. My own very strong instinct is to delay pushing as long as possible, and this has made me wonder if the terrific urge to push is really natural, or if it is created by the flexed positions that most are encouraged or forced to adopt. It is all very well to compare parturition and defaecation, but they are not the same. One occurs daily through an orifice well used to dilating, the other happens seldom, so relaxation to enable the outlet to stretch easily is required, not force. I believe that Nature really intended us to choose this position which seems to relax the perineum most, and has given the uterus enough strength to do all the pushing necessary. I have proved this, to my own satisfaction at any rate, by subsequently having a baby in the lateral position. Not only was it very uncomfortable in comparison, but, also, in spite of an irresistible urge to push, it took several minutes longer than with the legs extended. Perhaps I should add that my confinements were all in the last three years, so my experiences of labour are recent ones. The babies were all 8 lb. (3.6 kg.), and as I had no drugs or analgesia I was quite clear about all that happened. I think therefore that Dr. Leak is right and that this is the most comfortable and helpful position to the mother, so I hope that others will at least try it.—I am, etc.,

"DOCTOR'S WIFE."

## Antenatal Pulmonary Embolism

SIR,—I read Miss Elsie M. Sibthorpe's account of three cases of antenatal pulmonary embolism (*Journal*, October 29, p. 1063) with great interest, and in view of the small number of cases she found in the literature I think it worth reporting three more cases which occurred in the Somerset clinical area between July, 1954, and June, 1955.

*Case 1.*—A three-gravida, aged 28, was admitted to hospital on June 25, 1954, for hyperemesis. She was eight weeks pregnant. On July 4 she complained of pain in the right leg,

which was found to be the site of a deep venous thrombosis. The patient was confined to bed and treatment with penicillin and ethyl biscoumacetate was commenced. On July 7 the patient complained of sudden severe pain in the left side of her chest. She was not shocked but had diminished air entry at the left base and a pleural rub. Pulmonary embolism was diagnosed and morphine sulphate ¼ gr. (16.2 mg.) given. As the patient vomited the ethyl biscoumacetate it was replaced by phenylindanedione, and this was continued for 31 days. The chest cleared and the leg settled, apart from some oedema. The patient was allowed to go home and the pregnancy continued uneventfully until the 38th week, when a living child weighing 6 lb. 5 oz. (2.8 kg.) was delivered normally. The puerperium was uneventful.

*Case 2.*—A primigravida, aged 25, was admitted to hospital on June 4, 1955, at the 28th week of pregnancy. That morning the patient had collapsed on getting out of bed with severe pain in the lower abdomen and the right side of her chest. On admission she was shocked, cyanosed, and severely dyspnoeic. The pulse rate could not be counted and the blood pressure was 86/60 mm. Hg. There was no oedema or tenderness of the legs. The neck veins were engorged but the heart appeared normal except for an apical systolic bruit. The breath sounds were harsh over the whole of the right lung. A chest *x*-ray showed an enlarged heart but clear lung fields. Electrocardiograph showed an inverted T wave in all leads with depression of the S–T component in lead 2.

Pulmonary embolism was provisionally diagnosed. Oxygen was given and the patient sedated with morphine. Her condition showed some improvement, but dyspnoea persisted; the pulse rate was 140/min. and the blood pressure remained low. On June 10 labour commenced and a living child weighing 2 lb. 14½ oz. (1.3 kg.) was delivered normally, but immediately following delivery the patient suffered a massive pulmonary embolism and died within a few minutes before completion of the third stage. At necropsy the heart was found to be normal, but both pulmonary arteries were filled with fresh ante-mortem clot and clot of less recent origin was present in the minor branches of the arteries. Both lungs were almost completely collapsed with free fluid in the pleural cavities. No thrombosed veins could be found to account for the pulmonary emboli.

*Case 3.*—A two-gravida, aged 31, was admitted to hospital on June 25, 1955, at the 26th week of pregnancy. She had had increasing dyspnoea and slight retrosternal pain for a fortnight and that morning had coughed up a little bright red blood. She was not shocked and the heart and lungs appeared normal. A few superficial varicose veins were noted in the left leg but no evidence of thrombosis. Later that day the patient complained of pain in the right chest and expectorated more frothy bright blood. By this time she was tender over the lower right chest, with dullness and bronchial breathing over the right middle and lower lobes. Penicillin therapy was started that night. Next morning a positive Homan's sign was elicited in the left leg and venous thrombosis with pulmonary embolism was diagnosed. Chest *x*-ray showed consolidation of the middle and lower lobes of the right lung. Heparin was given for 24 hours, followed by ethyl biscoumacetate for 14 days. The leg improved rapidly and the consolidation cleared. The patient was discharged after 22 days, and at the 38th week of pregnancy delivered a living child weighing 8 lb. 1 oz. (3.7 kg.). The puerperium was uneventful.

—I am, etc.,

Taunton. HELEN M. RUSSELL.

SIR,—Miss E. M. Sibthorpe's paper on antenatal pulmonary embolism (*Journal*, October 29, p. 1063) is a timely reminder of the great danger inherent in a condition which is probably much more common than is generally assumed. Many cases pass unnoticed or unreported, particularly if they recover. This had unfortunately not happened in the following case.

The patient, aged 32, had had a miscarriage nine years ago and a normal delivery seven years ago. Within the past three years she had missed her periods four times by about two to three weeks and passed then large, skinny, clotty lumps. She thought she had abortions every time. On December 21, 1954, she attended with a history of having had her last period on November 14. In view of the habitual abortions she had progesterone implants, after which the pregnancy continued undisturbed. She was seen on April 25 when she was 23 weeks pregnant, and all seemed to be normal except for varicose veins of the left leg which were slightly tender. She was ordered elastic stockings, which she got from her doctor. He saw her again on May 2 and again on May 9, when he thought she had thrombophlebitis along the left saphenous vein and ordered her to bed. He was called out early in the morning two days later to a collapsed patient. According to her husband she did not feel well on the evening before and felt faint all during the night. In the morning she went out to the lavatory, where she collapsed. The doctor was called at once, but a few minutes after his arrival the patient died. No necropsy was performed, but there was hardly any doubt of the diagnosis of pulmonary embolism.

As with other types of embolism, prevention should be our first duty, but Miss Sibthorpe and the professorial unit at Bristol are against anticoagulant therapy, apparently as the fluctuation in prothrombin levels in the blood may in itself predispose to embolism. Dr. R. R. Gordon and Mr. T. Dean (*Journal*, September 17, p. 719) are also against the use of anticoagulants in thrombophlebitis of pregnancy, but for different reasons—namely, for their danger to the foetus. Few obstetricians would be willing to follow that advice of withholding anticoagulants in the interests of the foetus if they could only hope to prevent pulmonary embolism in the mother.

It is difficult to see why treatment regarded as successful in the puerperal or non-pregnant person should be ineffective or dangerous in the pregnant woman. Of four cases of thrombophlebitis in pregnancy observed during the current year in my small unit, two received anticoagulant treatment without deleterious effect, the third was the fatal case described, and the fourth is in hospital now with toxaemia of pregnancy and very bad deep and superficial varicosities of both legs, having just recovered from an attack of phlebitis, treated by her own doctor without anticoagulants.

It is to be desired that obstetricians with greater material should publish their figures to allow a balanced judgment of the successes and dangers of anticoagulant therapy in pregnancy.—I am, etc.,

Sheppey. F. SCHMELZ.

## A Simple Blood-grouping Method

SIR,—There is no short cut to accurate and reliable blood-grouping. Whatever method of blood-grouping is employed, simple or complex, control tests are essential. With anti-A, anti-B, and anti-D sera it is essential to include control tests with known A, B, and O cells, and also Rh+ (D+) and Rh-negative (cde) cells. To work without controls is to work blindly and, therefore, to court disaster. Mr. J. T. Rice-Edwards mentions in his letter (*Journal*, November 5, p. 1142) that there is a control panel on the Eldon card; this, of course, is simply a control of the cells under test and is not, of itself, a guide to the reliability of the grouping sera on the card.

As to the use of these cards in "outlying hospitals," by which, presumably, Mr. Rice-Edwards means those lacking trained workers on the spot to do grouping and compatibility tests, there are obvious objections. Who will do all these tests and interpret them? The proper course, and that which, in fact, has been generally followed in this country, is that grouping and compatibility tests shall be performed only by trained workers, and that, so far as is practicable, only blood of homologous group shown to be compatible by reliable techniques shall be transfused (it may be noted here that the number of errors made in slide grouping tests during the recent war was considerable, most errors occurring in the hands of inexpert workers). If there is time to do compatibility tests (and for safety this means, at least, tests in tubes with cells in saline and in albumin), then there will obviously be time also for ABO and D grouping tests by reliable techniques. Having regard to the hazards involved, these cards, or any other system, can be condoned neither if they are to be used without the inclusion of proper controls, nor if their use means that unmatched blood (albeit of apparently homologous group) is to be transfused, for it is a potentially dangerous practice. Compatibility tests ought, except when delay may endanger life, never to be omitted. If blood must be transfused unmatched, it is safer to give group O blood rather than blood of a group other than O; likewise Rh-negative blood should be resorted

to for recipients of unknown Rh type and, of course, for Rh-negative patients. When the need for blood is immediate a rapid method of Rh typing will be advantageous for screening negatives from positives, for it will ensure that Rh-negative patients receive Rh-negative blood and it will obviate needless use of Rh-negative blood on Rh+ patients. For such rapid Rh typing the Eldon card is, no doubt, suitable, but there are other techniques—for example, Stratton's "sandwich" test—which are at least equally reliable and which are less expensive.

Often when the need for blood is urgent there is, nevertheless, time for grouping and compatibility tests by reliable techniques. When there is need for immediate restoration of blood volume, plasma can be given and, in the interim, grouping and compatibility tests can be done with a view to transfusion of blood of homologous group. It will, however, often be possible to effect adequate resuscitation with plasma alone, perhaps two or three bottles, and transfusion of blood, if it is necessary, may often be deferred, perhaps until next day, when grouping and compatibility tests can be done at leisure. Plasma is little inferior to blood for restoring blood volume. Plasma, used by itself, has saved many lives. Also, transfusion of plasma will generally obviate the need for transfusion of unmatched blood, with its attendant risk of incompatibility.

As to the reliability of the Eldon cards, I have only the advantage of having tested one of these, kindly given me by Mr. Rice-Edwards. The anti-D serum on the card gave a negative reaction with a D+ blood which gave good positive reactions with standard anti-D sera. Mr. Rice-Edwards quotes an error rate of six in 6,591 tests, which is about one per thousand. In the hands of trained workers using the tube technique, and grouping both on cells and serum, the error rate is considerably less.—I am, etc.,

Cardiff. R. DRUMMOND.

## Myxoedema Coma

SIR,—The article on myxoedema coma by Drs. L. Karhausen and S. Zylberszac (*Journal*, September 24, p. 766) reflects little other than discredit on its authors, I feel. To summarize their case: they undertook the care of a 63-year-old woman presenting a characteristic picture of myxoedema. She was kept under observation for 16 days without specific treatment, during which time she became deeply comatose. It is said that she "died despite hormonal treatment." In fact she was given thyroxine only three hours before death.

Granted it is well shown that a case of obvious myxoedema when untreated will progress to coma and death without hypothermia, but the observations and extensive investigations do not seem to add anything useful to our knowledge of the disease, and, as the authors indeed state, "a diagnosis of myxoedema was made on admission."—I am, etc.,

Chelmsford, Essex. J. N. WATTIE.

## Diverging Sex-morbidity Trends in Cancer of the Mouth

SIR,—In his letter (*Journal*, October 29, p. 1089), Mr. A. D. Hitchin directs attention to dental treatment as a possible factor in the prevention of cancer of the mouth. One must agree with his statement that oral sepsis and mechanical irritation, particularly in the male, cannot be ignored, and that preferably some reference to them ought to have been made in my article "Diverging Sex-morbidity Trends in Cancer of the Mouth" (*Journal*, October 1, p. 823).

May I now explain that I had not entirely neglected these possibilities, despite the regrettable lack of specific mention? In an earlier article, however, on "Sex Differences in Prognosis Following Radiotherapy" (*Journal*, February 20, 1954, p. 430), dealing with much the same period, a statement was made that it had not been possible to undertake in a survey of retrospective character an investigation of dental sepsis. Before preparing the more recent investigations I studied sales charts of items connected with oral hygiene and statistics of dental treatment, but decided that they could not usefully be incorporated in the article.

As regards the points raised by Mr. Hitchin in relation to qualitative progress within the dental profession, its potentialities in the field of preventive medicine, and, in particular, in the prevention of oral cancer, that this thesis is credible may perhaps be supported by some evidence of the greater awareness to which he refers. In the earliest years of my recent survey (1935–6) 0.6% of Manchester residents suffering from cancer of the mouth and seen at the Christie Hospital and Holt Radium Institute were referred from the Dental Hospital. A decade later the proportion had increased to 6.7%, and by 1954 it had risen to 13.5%. Although these figures may to some extent reflect the higher status of the specialty, and consequently the route by which the patient arrives at a cancer-treating centre, it is believed by responsible authorities at the Dental Hospital, Manchester, for example, that genuine progress has been made in the detection of cancerous or pre-cancerous conditions.—I am, etc.,

Manchester, 20. MARION H. RUSSELL.

## Malignant Change in Tissues Affected by Herpes

SIR,—Dr. R. Wyburn-Mason's most enlightening paper on "Malignant Change Arising in Tissues Affected by Herpes" (*Journal*, November 5, p. 1106) immediately brought to my mind a case of mine which may be of interest.

In January, 1954, a boy aged 17 developed herpes zoster over the left supraclavicular region. In May this year he suddenly developed a mass of glands in the same region, which have been proved by biopsy to be Hodgkin's disease. As far as can be ascertained by examination and radiology the disease is quite localized.—I am, etc.,

Birkenhead. M. F. HOLT.

## Testing Limitation of Movement of Spine

SIR,—As a temporary (National Service) medical officer to a factory where there are a number of cases of back troubles, I was very interested in the article by Professor Ian Aird, "Tests to Distinguish Functional from Organic Limitation of Movement in Spine or Hip" (*Journal*, November 5, p. 1110).

While feeling that these tests should be of great assistance in assessing the doubtful case, there are two points that bother me. (1) When the erect patient bends to touch his toes his centre of gravity moves forward. The weight of the trunk and head subject the lower vertebrae and sacrospinalis muscles to progressive stress and strain respectively. This factor would not be present when the patient sits up as described. In the illustration sitting Fig. 2 the centre of gravity has moved less from the erect position than in Fig. 1. The abdominal muscles pull the patient into the sitting position. Many patients can bend further when the weight is partially supported as by holding on to the edge of one's desk. (2) In the hip flexion test as illustrated in Fig. 5 the patient is sitting with both hips flexed. May not part of this apparent movement be due to flexion of the lumbar spine? This is prevented by the extended normal leg in Fig. 4.

Certainly if the patient is confronted by evidence of hysteria or malingering and accepts the suggestion all is well. If either of the above factors exists, however, he might well make a complaint to his union of an unjust accusation, with disastrous consequences to the unfortunate doctor.—I am, etc.,

Fareham, Hants. J. D. K. BURTON.

SIR,—I was interested in Professor Ian Aird's tests for limitation in movement of spine or hip due purely or partly to hysteria or malingering (*Journal*, November 5, p. 1110). As he wisely says, "It is extremely rare for a hysterical patient or intelligent malingerer to be caught off guard"; yet surely Fig. 2 and Fig. 5 involve just this. One notes that the spinal case has bent his spine to an extreme (Fig. 2), while the hip case has held a stiff spine and flexed hips and knees (Fig. 5). Fig. 2 is a difficult position for many older people to adopt with the straight knee; it is the position in the bath, to which cases of even minor sciatica most object,

and it seems unlikely to be adopted by a functional case or malingerer. Even when it is adopted, the forces of gravity are different in Fig. 2 and Fig. 3; presumably he was helped to sit up and then has a balanced vertical spine, while in flexing from the standing position the weight of the upper portion of the trunk has to be held by the erector spinae and flexion gradually allowed, involving very different strains on muscles and joints. Therefore, Fig. 2, in my opinion, could not be taken as implying that there was no organic reason for Fig. 1 not proceeding to Fig. 3 without complaint.

I frequently find differences in the range of movement allowed when the painful spine is bent in the sitting or standing positions, but remain convinced that medical practitioners will be very ill-advised to base a diagnosis of malingering or hysteria on such an observation. These cases always complain of pain and not limitation of movement, and the satisfactory proof of the absence of the pain is not available to us. Some support for conscious or unconscious exaggeration of such pain would come from the gross discrepancies in movement found in the tests as shown in Professor Aird's diagrams, but the man could not be called an "intelligent malingerer," nor would any hysteric that I have met perform them.—I am, etc.,

Bristol. A. L. EYRE-BROOK.

## Hysterical Abdominal Proptosis

SIR,—The account by Mr. M. R. Ewing and Dr. J. H. D. Millar of a case of "Hysterical Abdominal Proptosis" (*Journal*, November 5, p. 1124) was indeed most interesting. I think attention might usefully be called to the milder variety of this syndrome, more common than the other, and which I failed to emphasize in the paper[1] to which the authors refer. Such patients, usually women, complain of abdominal distension, not usually present in the morning, but becoming apparent with increasing fatigue as the day wears on. Sometimes it is noticeable soon after eating, subsiding a little in an hour or so and then reappearing after the next meal, and when the patient feels tired. There is usually merely slight discomfort and the patient may loosen her skirt and corsets to bring relief. I believe that such patients, especially middle-aged women, are often considered to have chronic cholecystitis or "visceroptosis," but once the fact is established that the swelling is *visible* the correct diagnosis should be obvious. When one of these patients is seen with the abdomen flat and asked to demonstrate the extent of the swelling, she does so in a characteristic fashion, with both hands held in front of the abdomen, fingers extended at the inter-phalangeal and flexed at the metacarpo-phalangeal joints. I have seen two men with the grosser form of the condition who were given celluloid baby dolls by their workmates; it may cause a good deal of mental suffering when it affects unmarried women or those at the menopause.

I am afraid I cannot suggest any treatment for these patients except repeated reassurance (and perhaps the tattooing of their abdomens in the right paramedian line with the warning: "Do Not Open").—I am, etc.,

Manchester, 3. NEVILLE ROUSSAK.

REFERENCE

1 Roussak, N. J., *Gastroenterology*, 1951, 17, 133.

SIR,—The report by Mr. M. R. Ewing and Dr. J. H. Derek Millar (*Journal*, November 5, p. 1124) of this hysterical curiosity seems to call for some comment. The authors do not seem to appreciate that in dealing with the patient they have reversed the classical approach to illness by taking the full history afterwards rather than at the beginning. The classical approach has the advantage of providing the clinician with opportunities for practising a basic technique of psychological medicine—allowing the patient to show his preoccupations and personality traits in the way he gives his history.

Moreover, in the report there is the usual absence of any comment whatever on the psychological predisposition of the subject, although it was the main aetiological factor in the syndrome described. Thus is perpetuated an outlook which concerns itself first with bodily mechanism rather than the patient as a motivated human being.—I am, etc.,

Hornchurch, Essex. R. W. CROCKET.

SIR,—I was most interested in the valuable paper by Mr. M. R. Ewing and Dr. J. H. Derek Millar (*Journal*, November 5, p. 1124). This syndrome is rarely recognized. In 1945 Mr. Paul Houghton and I saw a typical example, but the picture was further complicated by the fact that there was persistent vomiting. Although we had made the correct provisional diagnosis of the Alvarez syndrome, the vomiting, along with the development of left-sided pain, forced Mr. Houghton to carry out operation. No abnormality was found, and the ultimate progress was similar to the case reported.

I mention this case, since the presence of colic and persistent vomiting, even when there is lordosis, non-gaseous abdominal distension, and the other features, may render a laparotomy essential.—I am, etc.,

Inverness. J. RONALD.

## Malignant Melanoma

SIR,—The reports by Dr. H. Stewart (*Journal*, March 12, p. 647) and by Dr. E. P. Allen (*Journal*, October 29, p. 1067) of melanomas growing in pregnancy and regressing after delivery are of the greatest interest. Dr. Brian Russell (*Journal*, April 9, p. 915) has suggested the most probable explanation of this phenomenon—i.e., the temporary increase in secretion of the melanocyte-stimulating hormone (M.S.H.) in pregnancy. If this is the correct explanation, and if melanomas require the presence of this secretion in order to grow, then there exists the possibility of arresting the growth of these tumours by depriving them of M.S.H. There are available two means of doing this: (1) Removing or destroying the pituitary and maintaining health by giving substitute hormones (not including, of course, corticotrophin, which is usually contaminated with M.S.H.). (2) Giving cortisone, which probably inhibits the secretion of M.S.H., as evidenced by the disappearance of pigmentation in Addisonian patients under treatment with cortisone.[1]—I am, etc.,

London, W.1. J. S. PEGUM.

REFERENCE

1 Lerner, A. B., Shizume, K., and Bunding, I., *J. clin. Endocr.*, 1954, 14, 1463.

## Spasticity in Infants

SIR,—In your leading article on "Spasticity in Infants" (*Journal*, November 5, p. 1130) you stress the importance of early diagnosis. We in the school health service, who are responsible for the treatment of these children, welcome this article. I would urge that any infant whose development is in any way considered retarded should at once be fully investigated. The early diagnosis of deafness, since the work of Miss Edith Whetnall (*Journal*, December 25, 1954, p. 1542), is at least of equal importance to that of cerebral palsy. Even diagnosing early that an infant is mentally retarded is to the benefit of both child and parent.—I am, etc.,

Liverpool, 2. G. STUART ROBERTSON.

## Prefrontal Leucotomy

SIR,—I wonder if any brain surgeon would readily undertake to perform prefrontal leucotomy in the event of his having had the opportunity of observing for himself in some other case, not once but several times, what the patient was like before and after the operation. I have the feeling that he would not quite as readily agree to operate just because he is asked to do so. Being a blind operation, however skilful one may be, damage to the superimposed cortex and underlying fibres to a greater or lesser extent cannot be avoided in the course of trying to reach what should be cut, which is, unless I am mistaken, the real aim of the operation. The fact that it has been found necessary to modify the

procedure by the application of some new technique provides abundant proof that something else must be done to eliminate, if possible, the occurrence of such distressing changes of personality so frequently observed in unfortunate patients who have had that operation. It is apparently so easy to transform what was a functional condition into an irreversible organic disease. I know of two such cases, and would gladly help if I could to spare others a similar knowledge. It is a heart-rending experience.—I am, etc.,

Greenhithe, Kent. D. W. STANDLEY.

### Treatment of Post-herpetic Neuralgia

SIR,—After an attempt with topical antihistamine, which proved disastrous, I tried iontophoresis with histamine ointment (histamine acid phosphate *B.P.*). I have used this method in several cases, some of very long standing. All that is needed for the treatment is a 9-volt battery, 2 insulated wires, and 2 electrodes made from copper mesh—for example, saucepan cleaners—enclosed in a wet lint-bag. A thin layer of ointment is applied to the affected part, and the positive electrode placed firmly on it, while the negative one is fixed to the arm or leg on the other side, until an urticarial rash appears. The treatment can be repeated two to three times a week, until all the pain has gone. Relief is immediate after the first application. Treatment should not be begun in fresh cases until at least one week after the appearance of the shingles.

In my limited experience this treatment has never failed, but I should be grateful to hear about the experience of others.—I am, etc.,

Tunbridge Wells. L. ENGEL.

### Tuberculosis in Students and Nurses

SIR,—As the County Council of Ross-shire has officially adopted the Department of Health scheme of B.C.G. vaccination for scholars of 13+ years this spring (1955), it might be interesting to compare the results of tuberculin testing and B.C.G. vaccination here in Lewis with the information given by Dr. Richard E. Verney in his valuable and instructive paper (*Journal*, October 15, p. 929).

Here, testing and vaccination have been going on since 1949 (3,750 vaccinated)—both by Heaf M.P. apparatus since January, 1953. The figures for the 13+ years are given in the Table.

| | Boys | | | | | Girls | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total Tested | Non-vaccinated | | Previously Vaccinated | | Total Tested | Non-vaccinated | | Previously Vaccinated | |
| | | Neg. | Neg. (%) | Pos. | Revert Neg. | | Neg. | Neg. (%) | Pos. | Revert Neg. |
| Stornoway | 367 | 101 | 45 | 145 | 3 | 359 | 99 | 55 | 162 | 17 |
| Rural | 164 | 68 | 77 | 76 | 5 | 187 | 76 | 62 | 59 | 6 |

Most 13+ pupils are to be found in the Central Secondary School (Nicolson Institute). It is noted that a higher percentage of pupils are negative in the rural areas (there is no case of bovine tuberculosis).

Dr. Verney states: "The post-B.C.G. positive reaction is uniformly shown by six discrete areas of erythema. If superinfection by the tubercle bacillus has occurred the whole area is erythematous and indurated." The latter is the usual reaction among those vaccinated in Lewis without any question of superinfection. Indeed, six discrete areas of erythema, as was usually obtained by B.C.G. given by Heaf M.P., was looked upon as not very satisfactory (since concentrating the B.C.G. vaccine a much more decided post-vaccination reaction has been obtained). A satisfactory conversion allergic reaction was expected to give at least a raised indurated ring of erythema formed by the confluence of the six separate reactions to the six punctures (it will be readily understood how difficult it is for one far removed from co-workers to have opportunities for visual comparison). Could it be that this high reversion rate in Edinburgh, compared with the other universities, is in any way related to the degree of allergy produced—the testing material being O.T. or P.P.D.?

When using the Mantoux test of any strength it was nearly always possible to distinguish B.C.G. allergic reactions from natural tubercle bacillus allergy, but with M.P. technique this difference in colour and appearance is lost, it seems. In those cases where tuberculosis of bones or joints has been diagnosed in someone who had had B.C.G. it has been possible to say that the reaction to 1/10,000 O.T. was of B.C.G. origin and to have the diagnosis of tuberculosis disproved bacteriologically and pathologically.

In Lewis the notified cases among scholars have not always come from the initially decidedly positive: in some the allergic reaction was of mild degree. The proportion of notified cases among those initially positive is much higher than among those originally negative. Not a few children who have been non-reactors as school entrants but did not accept B.C.G. have, on being retested in 12 or 18 months, been found positive, and on inquiry it has been learned that they have been off school for weeks or months with "colds," "flu," "cough," "glands," "pain in the chest." These must have been of a tuberculous nature which had gone undiscovered. Since none of those having B.C.G. (3,750) have been so absent it would appear that much sickness could be avoided if all children were B.C.G.-vaccinated at birth.

If B.C.G. of suitable concentration were put up in individual tubes, like calf lymph, G.P.s or nurses could administer it by M.P. without causing the least upset—no broken skin with oozing sores of long duration—and the conversion would be every bit as satisfactory as that produced by intradermal injection with all the attendant difficulties of performance and occasional complication.—I am, etc.,

Stornoway. R. STEVENSON DOIG.

### Fatal Overdose of Penicillin

SIR,—I was interested in the report of a fatal overdose of penicillin given by the intrathecal route (*Journal*, November 5, p. 1151). The report is of course brief, and no pathological details are included, and as this is a type of case that could easily recur I wondered if we might be more fully informed of the necropsy findings. If these were negative, as appears to be suggested, several important points arise. Was the convulsion and death due to penicillin alone, or had the dosage of penicillin injected a bearing on death? In other words, would the death have occurred with 100,000 units just as much as with 500,000 units? Was the opinion as to the cause of death based on pathological findings, and, if so, what would one expect to find? It would appear from the report that the death was assumed to be due to the injection of penicillin presumably because the convulsion followed soon after the injection, and not due to the primary illness.

I would be glad to know if the illness could have been a case of acute fulminating encephalomyelitis, in which the cerebrospinal fluid might be perfectly normal and the necropsy findings very indefinite, except perhaps on brain microscopy. We have had several cases recently of very rapid deaths in children following indefinite mild illness of short duration, similar to that reported, and in which no lumbar puncture had been done and no penicillin given. The necropsy findings were very scant and indefinite, and the deaths were thought to be due to acute fulminating virus encephalomyelitis.

Perhaps Dr. P. D. Swinstead could report this case in more detail, and I should be interested in his necropsy findings. In some conditions—e.g., osteomyelitis—we use penicillin in such large doses, 1 mega or more daily for a few weeks, that it seems to me to be odd that we rarely see any complication of high concentrations. I presume that with intrathecal injections, as with intravenous injections, there is a greater risk of sudden anaphylactic shock and death.—I am, etc.,

Brierfield, Lancs H. C. PALIN.

## Acute Phlegmonous Caecitis

SIR,—The correspondence on the above subject is of great interest, as I believe acute phlegmonous conditions of the intestinal tract are much more common than is generally known. As stated by Dr. A. A. Bartholomew (*Journal*, November 5, p. 1146) the first record of the condition was by von Rokitansky.[1] The condition certainly occurs in the stomach, a typical case being described by Moynihan in 1922.[2] In 1944, in collaboration with Aladar Politzer, I published[3] an article on acute phlegmonous colitis. Two cases believed to be that condition were described and the world's literature reviewed. As far as could be ascertained these were the first recorded cases in the literature of this country.

Since 1944 I have seen several cases of phlegmonous inflammation involving various parts of the intestinal tract. To anyone particularly interested I have an *x*-ray photograph (barium enema) of what is believed to be a condition of acute phlegmonous colitis of the descending colon. This photograph is, I think, unique, and can be seen in the special film section of the *x*-ray records at Wembley Hospital. The condition was confirmed at laparotomy, and, macroscopically, was indistinguishable from that described as acute Crohn's disease.—I am, etc.,

London, W.1. J. S. CALLCUTT.

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2 Moynihan, Lord, *Brit. J. Surg.*, 1922, **10**, 43.
3 Callcutt, J. S., and Politzer, A., *Med. Wld*, 1944, **60**, 763.


## Broadcasting by Doctors

SIR,—Can nothing be done to control some of the debatable views which are being broadcast to the public by certain self-styled medical authorities?

Dr. Winifred de Kok, of whom I have not previously heard, has just broadcast on television a sample of such opinions. This was in reply to a letter from a mother who was not permitted to witness the extraction under gas anaesthesia of four of her child's teeth. Dr. de Kok dogmatically informs the public that she "is on the side of the mothers" in this, whatever this may mean. The impression given was that mothers should be invited to witness the anaesthesia and operation, and Dr. de Kok is entitled to her opinion. She is not entitled, however, to take advantage of the microphone to propagate an opinion with which many of her colleagues would strongly disagree, to say nothing of the majority of sensible parents.

It has never been the custom, either in general practice or in hospital, to encourage such a procedure, and I venture to suggest that most doctors and dentists would agree that experience has shown that, except in exceptional cases, the presence of a parent at any minor operation would tend to make the child more nervous and emotional. A trained female attendant is far more capable of calming a nervous child. Indeed, it is my experience, having attended to thousands of such cases, that most parents are fully aware of this. In difficult cases it is usually even more necessary not to have relatives present, since their unfamiliarity with the situation is liable to cause them unnecessary distress, and may render them a source of embarrassment to operator and anaesthetist.

I am sure that Dr. de Kok's opinion is erroneous, and it is not in the interests of patients that debatable opinions of this kind be broadcast.—I am, etc.,

Manchester. W. J. POOLE.

## Book Reviews

SIR,—Having practised abroad for several years in the Indian Medical Service away from teaching centres and without proper library facilities, I used to purchase a number of books to keep in touch with current developments.

Book reviews were an extremely useful guide in selection of what new publications to buy, and on the whole they have been fairly reliable. Some reviews, however, failed accurately and impartially to state the scope of the work reviewed and how it had been accomplished, suggesting that the reviewer had not properly read the work, while in a few cases the review suggested that the reviewer was merely trying to be funny.

If the author of a book gives his name there is no reason why the person who criticizes should not give his. Giving the name of the reviewer is the best possible guarantee against irresponsible or partisan criticism. I am strongly of the opinion that all reviews should be signed, and that those periodicals which still publish anonymous reviews should fall in line.—I am, etc.,

Melbourne, Australia. FRANKLYN STONHAM.

## Quality of New Cars

SIR,—Dr. P. Jacobs (*Journal*, November 5, p. 1146) recorded many defects in a new car. In my experience, speedometers are frequently defective and it has been difficult or impossible to get them made accurate. Since motorists are legally obliged to have an accurate speedometer, it appears that some manufacturers are benefiting financially while causing us to flout the law, because the last three speedometers which I have had are quite valueless.—I am, etc.,

London, W.1. J. M. ALSTON.

## Acute Abdomen in Children

SIR,—I have just finished reading the article in the "Refresher Course" series by Mr. D. Hindmarsh and Dr. D. Court (*Journal*, October 8, p. 899). The section on "Acute Non-specific Mesenteric Lymphadenitis" gave food for thought. They believe that "careful clinical attention" is sufficient to differentiate between this condition and appendicitis "in most cases," and so saves the child unnecessary laparotomy. This has not been my experience. I have even heard renowned teachers say that mesenteric adenitis should *never* be diagnosed on clinical examination.

Why use the word "laparotomy," which suggests a paramedian incision? McBurney's approach is quick, anaesthesia is good, and there is then no doubt about the diagnosis. My chiefs have always advised to "have a look," and I have never had reason to regret. I could not agree more when Mr. Hindmarsh and Dr. Court state: "When in genuine doubt always operate."—I am, etc.,

Dublin JOHN F. HICKEY.

## Ban on Heroin

SIR,—I have been surprised at the vehemence of the opposition to the banning of heroin, which I would have thought was done by the Government only after carefully considering the opinions of the experts, and further from a desire to reduce the frequency of drug addiction.

It would seem that certain eminent authorities whose names have recently appeared in your *Journal* have relied on heroin almost entirely when they have been called upon to treat intractable pain or to suppress the useless cough. I cannot think of any other use to which they might have put this drug. May I, then, apparently as a lone voice, say that I cannot see why this desperate adulation should be reserved for heroin. I look after a large number of patients in a home for incurable diseases, and never have I felt that heroin was essential. There are many other remedies, in my opinion just as effective, such as morphine, pethidine, methorphinan, amidone, etc. Nor has the need been felt in my outside practice, and this has been confirmed to me by other doctors, when I have asked them how often they use heroin. For the difficult cough there are a host of remedies of even wider range than I have mentioned above.

I feel therefore that if the Government's action will play even a minute part in reducing the horrors of drug addiction to heroin, then your correspondents have not a shred of real evidence to support their view that heroin is a *must* in certain diseases.—I am, etc.,

Hove. STANLEY KAYE.

# Obituary

## W. R. SNODGRASS, M.D., F.R.F.P.S.

Dr. W. R. Snodgrass died in Glasgow on November 22, a few days after his 65th birthday, after a short illness, and within two months of his retirement from the post of visiting physician to the Western Infirmary, Glasgow.

The eldest child of William Snodgrass, a well-known Glasgow medical practitioner, William Robertson Snodgrass was born on November 26, 1890, and began his early education at Glasgow Academy, but, for health reasons, completed it at Morrison's Academy, Crieff, where he was dux of the school. In that golden age just before the first world war he received his academic training at the University of Glasgow, where he was a contemporary of James Bridie, and others who formed at that time a brilliant and restless coterie. He graduated B.Sc. in 1912, and took the degrees of M.B., Ch.B. in the following year. As an undergraduate he so far overcame his juvenile disabilities as to become a first-class golfer, which seemed strange to those who knew him in his later non-athletic days. Like most of his generation he spent the years between 1914 and 1919 as a medical officer in France, first with units of the line and later with an ambulance train and at the base at Rouen.

Having obtained a post as an extra dispensary physician at the Western Infirmary, Snodgrass, as was customary in that day, started in general practice in the west end of the city in 1919, but was soon able to give more time to his training as a physician by obtaining an appointment in the newly established venereal diseases service in Glasgow, work for which his experience at the base in France had given him the necessary qualifications. In this service he was ultimately chief medical adviser, an appointment which enabled him to carry out work for a thesis on early, latent, and mucocutaneous tertiary syphilis: for this he was awarded the M.D., with honours, and a Bellahouston gold medal in 1935. The record of this work was published in one of the Special Report Series (No. 224) of the Medical Research Council.

As a result of the vagaries of age distribution in hospital staffs, Snodgrass had to wait until 1942 before he was appointed physician in charge of wards at the Western Infirmary. As an assistant physician he obtained opportunities for the independent practice of his specialty in the peripheral hospitals of the area, being at various times visiting consulting physician at the hospitals in Dumfries, Kilmarnock, and Stranraer, and at the Glasgow Eye Infirmary. His greatest chance came when he was appointed as the first physician to the Southern General Hospital. His name should long be remembered for the pioneer work he carried out there in the classification and rehabilitation of the mass of stagnant sick then found in Poor Law institutions. He had a clear and incisive mind, which made him the ideal man for the work, and in addition he had the will and the determination to see that his ideas were carried out. The stimulus which a man of his calibre gave to the transformation of the old Merryflats Poor Law Institution into the splendid general hospital which to-day has taken its place should be recorded in the annals of that institution. While working at this hospital he was responsible for the therapeutic assessment trials of the early sulphonamide drugs for the Medical Research Council.

His real love was the Western Infirmary. His corridor there was known as one in which his patients obtained a careful, full, and speedy investigation of their condition. It was one in which the turnover was well above the average. He was a splendid clinical teacher : it was an undergraduate belief that six months in his clinic made a pass in medicine a certainty. The efforts of his whole unit were equally directed towards the care of the patient and the teaching of the student. Every member of his staff worked with enthusiasm in the conduct of this work, and, though he drove his assistants, none worked harder than he did. To have served as an assistant with W. R. S., and been given a "good chit," was the hall-mark of a well-trained physician.

Snodgrass was elected a member of the board of management of the Western hospitals, and was for a period convener of the medical committee. He became a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow in 1920, and was honorary librarian of the Faculty from 1933 to 1946 and President from 1948 to 1950. At the Annual Meeting of the B.M.A. in Glasgow last year he was vice-president of the Section of Medicine.

J. M. writes: Snodgrass devoted himself whole-heartedly to the work of the Royal Faculty of Physicians and Surgeons of Glasgow, serving as its representative on the Scottish Joint Consultants Committee, of which he was for a time chairman, as well as on the English Joint Consultants Committee during the negotiations on the National Health Service. It is probably true to say that he was disappointed with the way negotiations went, and with the development of the hospital service, feeling that in many ways the new order was not an improvement on the old. On his retirement he had not the regrets he might have had if the old order had persisted. Before the second world war he was the moving spirit in the establishment of a committee of representatives of the hospital staffs in the Glasgow area, but he failed to get the staffs of the hospitals in the other areas of Scotland to form similar committees to join in the starting of what would have been a central consultants committee. Had this idea received support, the consultants of the country might have been in a better position to express opinions in the fateful days at the inception of the hospital service.

His interests were not wholly medical. He was a regular attender at orchestral and chamber music concerts. In the more leisurely days before the last war he was a regular loch angler. His university education gave him a breadth of culture which few of us in the specialties obtain in these busy days. As a physician, he must have been one of the busiest in Glasgow. He was, in the true sense, a general physician, and maintained strongly that there was need for more of such consultants to care for the patient when the necessities of the disease made the development of narrower specialization inevitable. He was an early owner of an electrocardiograph; he had a profound knowledge of venereal diseases, and his knowledge of the appearance of the ocular fundus was such as is seldom found in physicians.

He was a man of dynamic personality, and his honesty stood forth so strongly in the face of foolishness or knavery as to be thought rudeness. None were left in any doubt about his opinion on conduct that was contrary to his ideals, be they senior, colleague, or patient. It was said that he was either sworn at or sworn by, but those whose feelings were hurt often returned in gratitude to love. With patients in distress no effort was too great to find a solution of their troubles, whether medical or social. He never failed to find the way to the heart of a child. He was a man who carried his respect for the secrets of the consulting-room to a

degree which is seldom found in the staff rooms to-day. His opinions were freely and forcibly expressed, but he bore no malice where endeavour had been honestly made. He was a sound judge of men; and medicine in Glasgow, both in the clinic and in the committee room, will be much the poorer for his passing. With an intense love for his family and his home, he outlived his wife by only a few weeks. He is survived by two married daughters.

## F. BELBEN, O.B.E., M.B., F.R.C.S.

We record with regret the death of Mr. Frank Belben, consulting surgeon to the Royal Victoria and West Hants Hospital, Bournemouth, at the age of 86.

Frank Belben was born on April 16, 1869, at Poole, the son of Mr. T. Belben. From Haileybury College he went on to Christ's College, Cambridge, and continued his clinical studies at St. Bartholomew's Hospital, graduating M.B., B.Ch. in 1891. After holding a number of resident appointments at Bart's and the post of resident surgical officer at the Hull Royal Infirmary, he took the F.R.C.S. in 1894. He went to Bournemouth just before the turn of the century, and, unlike most other provincial surgeons of those days, he did no general practice, but worked solely as a surgeon. He quickly built up a sound reputation in Bournemouth and was for many years on the staff of the Royal Victoria and West Hants Hospital. During the first world war he worked as a surgeon at the Boscombe Military Hospital, and was appointed O.B.E. for his services. At the Annual Meeting of the B.M.A. held in Bournemouth in 1934 he was vice-president of the Section of Surgery.

A. B. R., R. H. L., and E. G. R. G. write: Frank Belben's death, though under tragic circumstances, must nevertheless have been peaceful. He was a bachelor who lived alone. Besides being nearly stone deaf, he had a defective sense of smell—hence his being unaware of an accidental leak of gas. He had held surgical appointments at the Royal Victoria and West Hants hospitals at Boscombe and Bournemouth, as well as at various cottage hospitals in the district. One of us (R. H. L.) was his house-surgeon, and had every opportunity to know "Frankie," as he was always called, really well. Always slightly deaf and rather eccentric, he was full of fun but never malicious. He was an excellent surgeon, neat and careful. Seemingly unhurried, he was never a minute late for appointments, and used to get great fun out of fixing them for the exact minute, even in the middle of the night.

He was one of the last real general surgeons, equal to every operative procedure of his day. It would be hard to find his equal in these days of specialization in this country. He did not rely on hospital notes, but kept a careful card index of his own of all cases, whether hospital or private. He felt his retirement from the hospital very keenly. At the end of his last operating session he said to one of us (A. B. R.): "I am giving up private work too, before it leaves me. Come back with me and see if any of my instruments are any use to you. I couldn't sell them, and I shan't want them again." This was the abrupt ending to the professional life of an able and versatile surgeon.

His smooth deft touch when operating was reflected in other activities; he was deadly accurate with his putter, and was always apt to produce a break of over a hundred, even in his eighties, at the billiard table. Up to the end he was an active member of the racing committee of the Parkstone Sailing Club, and he very rarely missed a day playing bridge and billiards at the Bournemouth Club. Like many deaf people, he had a serene expression and a happy temperament; he had an abounding sense of the ridiculous and an irresistible smile. The impact on his friends was such that whenever his name was mentioned their faces lit up and their expressions actually simulated his smile.

## M. HELEN DEEM, O.B.E., M.D.

Dr. Helen Deem, for the past sixteen years medical adviser to the Plunket Society in New Zealand, died at Dunedin on October 26.

A daughter of the late Sir Thomas Easterfield, director of the Cawthron Institute, Nelson, New Zealand, Muriel Helen Easterfield was educated at Wellington Girls' College and at Otago University, where she graduated M.B., Ch.B. in 1924. Four years later she proceeded to the M.D., and in the same year was awarded the first Lady King scholarship, during the tenure of which she studied problems of infant development and nutrition. After her marriage she lived at Wanganui. The sudden death of her husband changed the circumstances of her life, and she went overseas for further postgraduate study in paediatrics. In 1935 she obtained the D.Obst.R.C.O.G. In the same year she returned to New Zealand and joined the Health Department, working among the pre-school and school children in country districts of the North Island. In 1939 she was appointed medical adviser to the Royal New Zealand Society for the Health of Women and Children, probably better known as the Plunket Society. This society is responsible for the special training of infant-welfare nurses for the Dominion, and, through its infant welfare clinics and district-nursing services, undertakes the major part of well-baby supervision throughout the country. The post of medical adviser to the Society is thus of considerable influence and importance. In 1946 Dr. Deem also became lecturer in preventive paediatrics in the Otago Medical School.

A grant from the Carnegie Corporation of New York enabled her in 1947–8 to study advances in paediatric practice overseas, and she observed infant-welfare services in the United States, Great Britain, and Scandinavia. While in New York she represented New Zealand at an International Paediatric Congress. Other activities included a campaign for the avoidance of preventable accidents to infants and children in the home and the establishment of a pre-school education centre in Dunedin, which is maintained jointly by the Plunket Society and the Dunedin Free Kindergarten Association. This was housed for some years in a small cottage in the grounds of the Plunket Society's Babies Hospital in Dunedin, but in February last, after many years of effort, a large and modern centre was opened in the city. In 1952 Dr. Deem was appointed O.B.E. in recognition of the services she had rendered to child health.

M. McG. writes: Dr. Deem was an outstanding figure in the medical profession in New Zealand, and her contributions to the problems of infant welfare were widely known and appreciated in paediatric circles throughout the world. Her absorbing interest was the welfare of the infant and young child, and the vigour and enthusiasm she brought to her work were tempered with sound judgment and scrupulous attention to detail. She possessed in addition the happy faculty of being able to instil into those associated with her something of her own interest and enthusiasm. The team spirit thus engendered was bound to produce results. Although her work as medical adviser to the Plunket Society was largely of an administrative nature, she maintained throughout an active interest in clinical paediatrics, and her opinion regarding nutritional, developmental, and other problems of infancy was frequently sought by the Government and by various official bodies.

She has left her mark on paediatric practice in New Zealand. Hers was the formidable task of guiding the policy of the

Plunket Society during the difficult period of transition, expansion, and rapid advancement of knowledge. She had to adapt and mould the structure so well and truly founded by the late Sir Truby King in order to bring it into line with modern thought, but without destroying the fundamental concepts upon which the society had originally been built. In all this she was signally successful. A notable example of transition and progress was her revision of the society's infant-feeding formulae, which were subsequently accepted by the New Zealand Paediatric Society as a reasonable basis for infant feeding throughout the country. The widely used height and weight tables for New Zealand infants are also a product of her quest for basic knowledge. Other important work undertaken included the care of premature infants, surveys of ex-premature babies, and periodical surveys of breast feeding throughout the country. She was also instrumental in making available in larger measure for the teaching of medical students the great clinical resources of the Plunket Society.

Dr. Deem's life was a full and active one, and nothing could match her courage and determination in completing as much of her work as possible during the few short months which she knew were left to her after the onset of her illness. Much has been accomplished—she has pointed the way for further efforts in the future.

## J. H. BLAKELOCK, M.B., M.Sc., D.P.H.

We record with regret the death on August 27 at his home at Wellington, New Zealand, of Dr. J. H. Blakelock, the first director of the National Health Institute at Wellington. He was 51 years of age.

Born at Chesterfield in Derbyshire in 1903, James Hartley Blakelock became a science student at Sheffield University, after winning a county major scholarship. Taking the B.Sc. with honours in physiology in 1924, he graduated M.Sc. in 1925. He won the bronze medal for fourth-year medical students and took the degrees of M.B., Ch.B. in 1926. After an appointment as house-surgeon at the Sheffield Royal Hospital he began his career as assistant bacteriologist at Sheffield University, where the late Professor J. S. C. Douglas had a high opinion of his work. In 1928 he went out to Shanghai to join the health department of the Shanghai Municipal Council as assistant bacteriologist, being promoted in 1935 to directorship of the medical laboratory. During his thirteen years' service in Shanghai he had extensive experience in the manufacture of vaccines, for his laboratory produced over a million doses of smallpox and cholera vaccine annually. He also treated about 500 people every year who had been bitten by rabid dogs. His work included malarial studies, mosquito surveys, experimental work on larvicides, and the investigation of outbreaks of plague, and the laboratory which he directed dealt with many thousands of specimens each year.

After the outbreak of hostilities between China and Japan normal laboratory services were dislocated and Blakelock was seconded for refugee work. This included the evacuation and reorganization of hospitals, and on two occasions he assisted in the complete evacuation of two large hospitals while under shell fire. He also established the first temporary isolation hospital in Shanghai.

It was during his service in Shanghai that he married, and he and his wife travelled extensively into the interior of China and also throughout Japan. He had a fine collection of Chinese ivories. A keen yachtsman, he was secretary of the Shanghai Yacht Club.

Blakelock was on long leave with his wife and children when Japan came into the second world war, and as a consequence he accepted the offer of the appointment of medical officer of health in the New Plymouth district of New Zealand, and he carried out his work there with great vigour and efficiency. In 1944 he was appointed medical officer of health of Canterbury and the West Coast, and he continued in this post until 1952, when he was appointed first director of the National Health Institute in Wellington. The years he spent at Christchurch were among the happiest and most fruitful of his career. He improved the public health services in many ways, and took particular interest in health education. His work for the New Zealand Federation of Health Camps was not only an official duty but a matter of personal enjoyment. His concern for the aged and infirm was notable, and his investigations into outbreaks of communicable disease were extremely thorough.

Blakelock accepted the directorship of the National Health Institute firm in his belief that the Institute could make a major contribution to public health work in New Zealand. On his appointment he and his wife and children returned to the United Kingdom so that he could study public health laboratory developments. After an absence of seventeen years this visit gave him great pleasure. Returning to New Zealand early in 1953, he began the major task of organizing the Institute, and his last annual report sketched the progress made. The building was opened by the Minister of Health in September, 1954. Although the Institute was short-staffed, work had been started on toxoplasmosis, influenza viruses, psittacosis, Q fever, mumps, and lymphocytic choriomeningitis. A salmonella reference service and a leptospirosis diagnostic service were both introduced. Other work included a rat population survey for the Asiatic rat flea and the manufacture of T.A.B. and smallpox vaccines. Long before he died he had the future development of the Institute clearly in mind.

D. P. K. writes: The news of the sudden death of Dr. J. H. Blakelock was received with shock and sorrow, particularly in Christchurch and New Plymouth, where he had a wide circle of friends in all walks of life. Jim Blakelock's life was characterized by integrity and a hatred of sham and pretence. He had a warmth of human sympathy and understanding, typified by his approachability and concern for the welfare of subordinate staff. He lived with a determination to leave better than he found. His thoroughness and sense of duty were combined with a sense of humour. The death of such an outstanding officer in the public health service is a severe loss to his adopted country. In Christchurch one of his great pleasures was an active part in the debates of the Forensic Club, and in Wellington he found time to play the violin in two orchestras and edit the *Journal of the Royal Sanitary Institute*. He is survived by his widow, a son, and two daughters.

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JONAS STEIN FRIEDENWALD, associate professor of ophthalmology at Johns Hopkins Medical School, died on November 5 at the age of 58. He was the son of Harry Friedenwald, a former professor of ophthalmology and otology at the College of Physicians and Surgeons, Baltimore. Jonas Friedenwald was born at Baltimore on June 1, 1897, studied at Johns Hopkins University, and graduated M.D. in 1920. After studying and teaching general pathology for some years he became instructor in ophthalmic pathology at Johns Hopkins Medical School, and when the Wilmer Ophthalmological Institute was opened in 1925 he was appointed to its staff as pathologist. He was associate in clinical ophthalmology at Johns Hopkins from 1929 to 1931, when he became associate professor of ophthalmology. His contributions to ophthalmological literature included a textbook, *Pathology of the Eye* (1929). He was awarded the

Howe Medal (1935), the first Proctor Medal (1949), and the Donders Medal (1952), and he had been invited to deliver the Doyne Lecture at the Oxford Ophthalmological Society's meeting in 1956. Friedenwald possessed a fine collection of rare medical books, begun by his father. A man of culture and learning, he devoted much time to furthering the academic development of Israel.

# Medical Notes in Parliament

### Advice on Heroin

Mr. C. DOUGHTY (Surrey, East, Con.) asked the Minister of Health what was the composition of the Medical Advisory Committee which advised him concerning the ban on heroin. Mr. MACLEOD, replying on November 24, stated that the committee, which was appointed under statute, included the Presidents of the three Royal Colleges, the Chairman of the Council of the British Medical Association, the President of the General Medical Council, and the Chairman of the Council of the Society of Medical Officers of Health. It also included four consultant physicians, five consultant surgeons, and five general medical practitioners, all of whom were appointed after consulting the appropriate medical organizations—including, of course, the British Medical Association.

### Early Publication of Guillebaud Report

The Guillebaud Report is ready, and will be published as soon as possible. Mr. IAIN MACLEOD said of it on November 24 that every priority was being given to printing it, "but the document is voluminous (the summary alone covers more than 50 typescript pages), and I am afraid it must be some weeks before publication can take place. In the meantime, I am sure it would be improper for me to attempt either to summarize the report in my own words or to comment on its recommendations. Although two members of the committee have made certain reservations—which will of course be printed with the report—the whole committee have signed the main report itself."

### Industrial Health Hazards

Dr. BARNET STROSS (Stoke-on-Trent, Central, Lab.) asked the Minister of Labour on November 24 which industries were considered to bear serious health hazards, for which the Industrial Health Advisory Committee had recommended voluntary medical supervision. Sir WALTER MONCKTON stated that the committee had recommended the stimulation of the further development of voluntary medical supervision in the steel foundry, iron and steel manufacturing, rubber, and chemical industries. Dr. STROSS asked if there could not be an extension to all industries in which noxious fumes and dusts were inhaled. In copper-smelting foundries cadmium was sometimes used, and the fumes from it were known to be deadly in effect. Sir WALTER MONCKTON said he would bring that to the notice of the committee. Dr. STROSS also asked for a pilot industrial health survey in Stoke-on-Trent, in view of the health hazards in its principal industries. Sir WALTER MONCKTON said the question of further surveys was to be considered by the advisory committee, and he would bring the question to their attention.

### Chest X-rays in the Army

Mrs. E. HILL (Manchester, Wythenshawe, Con.) on November 22 asked the Secretary of State for War how many times National Service men had chest *x*-rays from enlistment to release. Mr. A. HEAD informed her that about 80% were *x*-rayed by the mass miniature process before entry into the Army and the rest shortly after entry. Any man suspected during his service of having been exposed to infection was examined immediately. Mrs. HILL said that chest physicians considered that 18 was a vulnerable age, and that these men should be examined before being sent overseas and when they returned. That would give the public greater confidence in the Army medical service. Mr. HEAD said they did try to examine men on their return. The difficulty was that they had only a limited amount of apparatus, and did not want to delay a man's demobilization. About half the men were examined before they went out.

Mr. HEAD also informed Mrs. Hill that a special check in 1953 showed that the incidence rate of tuberculosis among National Service men was 0.9 per thousand. It was better than the incidence among the ordinary population, which he thought was 1.7 per thousand.

### Private Treatment for Service Men

Mr. THOMAS WILLIAMS (Don Valley, Lab.) asked the Secretary of State for War on November 22 whether Service men had a right under the regulations to insist upon treatment by specialists other than Army physicians; and who determined when this right can be exercised. Mr. FITZROY MACLEAN, Under Secretary, War Office, said that any soldier was at liberty to seek private medical treatment at his own expense in off-duty hours. Mr. WILLIAMS asked if that meant that affected persons could seek specialist treatment in this country, as distinct from in Germany. Mr. MACLEAN replied that within reason a man could make use of his privilege leave to seek specialized medical advice, and if necessary commanding officers would grant special leave for the purpose. Mr. CHUTER EDE (South Shields, Lab.) asked what happened if his private medical adviser advised him that he was unfit for duty but the Army doctor thought he was fit for duty? Mr. MACLEAN said that the view of the Army doctor, in general, will prevail.

### Dysentery Outbreaks

Mr. W. HAMILTON (Fife, West, Lab.) asked the Secretary of State for Scotland on November 22 how many outbreaks of dysentery in each of the years 1950–4 inclusive had been directly traceable to contaminated food and how many to other sources. Mr. J. STUART stated that the vast majority of cases of dysentery occurred not in the form of outbreaks but by sporadic infection from case to case. The Department had, however, knowledge of 34 incidents between 1950 and 1954 that might be classed as outbreaks, of which only four were traced directly to contaminated food. These accounted for 361 of the 29,912 cases of dysentery notified in the period. He also stated that in the first three quarters of this year the number of provisional notifications had been 3,786, 4,609, and 2,733 respectively. Of these 1,255, 2,416, and 1,720 had been in Glasgow. In 1954 there were 10,558 notifications in Scotland, and in the previous four years there were: 1950, 5,075; 1951, 5,302; 1952, 3,368; 1953, 5,629.

### Vehicle Fumes in London

Mr. ALBERT EVANS (Islington, South-West, Lab.) asked the Parliamentary Secretary to the Ministry of Works what progress had been made by the Fuel Research Station in testing the concentrated gases caused by motor vehicles in London streets; Mr. J. R. BEVINS told him on November 22 that during the last 12 months the Fuel Research Station had measured the concentrations of carbon monoxide in the air caused by the exhaust gases of motor vehicles at a number of sites in London. The average concentrations ranged from less than one part of carbon monoxide per million parts of air in the centre of Hyde Park to 27 parts per million above the pavement in Oxford Circus at times of heavy traffic. These concentrations of carbon monoxide were well below the levels which would constitute a danger to health. The investigation of other pollutants in exhaust fumes was being continued.

### Disabled Pensioners

Brigadier J. G. SMYTH, Parliamentary Secretary to the Ministry of Pensions and National Insurance, informed Mr. S. SWINGLER (Newcastle-under-Lyme, Lab.) on November 21 that the numbers of war and industrial pensioners whose

disablement was assessed at 40% or more were about 255,000 and 35,000 respectively. The cost of increasing the pensions of these persons by 10s. weekly for 100% disablement and proportionately smaller amounts for the lower degrees of disablement would be about £4m. for war pensioners and £500,000 for industrial pensioners. He also told Mr. H. KING (Southampton, Test, Lab.) that the annual cost of conceding the claim of the British Limbless ex-Servicemen's Association for an additional 10s. a week for 100% disablement and proportionally for other degrees to all 1914–18 war limbless pensioners, if it could be restricted to them, would be about £400,000.

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*Smallpox Deaths.*—The only deaths from smallpox in Scotland in 1949–54, inclusive, were six in 1950. The ages of the victims were 10 months, 17 years, 18 years, 20 years (two), and 29 years.

*Factory Inspectors.*—There were 13 medical inspectors of factories in October, 1951, the same number as now. Two more will shortly be joining the Ministry of Labour from the recent open competition, and it is hoped to recruit a further three.

*Byssinosis Benefit.*—The provision made for byssinosis under the National Insurance (Industrial Injuries) Acts is under consideration by the Industrial Injuries Advisory Council.

*Safety in Agriculture.*—It is hoped to introduce at an early date legislation to safeguard the health and provide for the safety and welfare of those employed in agriculture and forestry.

*Soldiers' Varicose Veins.*—In the year ending last June, 165 soldiers below the age of 25 serving with the Army in Western Germany received hospital treatment for varicose veins.

# Universities and Colleges

## UNIVERSITY OF OXFORD

In Congregation on November 3 Dr. Janet M. Vaughan, Principal of Somerville College, was elected a member of the Committee for the Scientific Collections in the University Museum.

## UNIVERSITY OF CAMBRIDGE

In Congregation on October 15 the following degrees were conferred by proxy:

M.B., B.CHIR.—D. N. Whitmore, G. W. Phipps.
M.B.—R. E. Nagle, E. F. D. Gawne, K. P. Goldman, Mary G. Kemp.

## UNIVERSITY OF MANCHESTER

The following candidate has satisfied the examiners at the examination indicated:

M.D.—P. J. D. Snow (with commendation).

## UNIVERSITY OF SHEFFIELD

Mr. W. J. W. Sharrard and Mr. F. W. Taylor have been appointed part-time Clinical Teachers in Orthopaedic Surgery and Dr. D. MacVicar part-time Honorary Tutor in Obstetrics and Gynaecology.

Other appointments are announced as follows: Dr. R. C. Curran, Senior Lecturer in Pathology; Dr. D. H. Blakey, Lecturer in Obstetrics and Gynaecology; Mr. B. N. Catchpole, Lecturer in Surgery; and Dr. I. McL. Baird, Part-time Lecturer in Pharmacology.

## QUEEN'S UNIVERSITY, BELFAST

The following degrees were conferred at a graduation ceremony held on July 7:

M.D.—[1]R. H. Livingston, [1]G. C. Patterson, K. E. Donnan, A. Jones Margaret A. Lynas, Beatrice A. Russell, B. Steinberg, Vera A. Sullivan.
PH.D.—R. F. Whelan, M.D.
M.B., B.CH., B.A.O.—[2]Marjory H. Boyle, [2]M. T. Harrison, [2]D. J. McWilliams, [2]R. M. H. Pinkerton, Mabel G. Adams, Mary C. Armstrong, R. Armstrong, N. E. C. Bamford, J. A. Best, Jean M. W. Bolt, Sheelah Caldwell, E. S. Cathcart, S. D. Clarke, W. A. Cobain, S. J. Cornett, H. B. Coulter, H. J. L. Craig, R. B. Crossley, K. P. W. H. Davison, Gurna M. Dick, Alys E. P. Donnan, W. B. Douglas, D. S. Doyle, P. E. Elwood, Maureen Gilpin, W. E. Glover, Bozena Gryglaszewska, A. B. Hamilton, D. S. Hamilton, Rosemary Hawe, S. Hyndman, E. M. Johnston, J. A. Kennedy, W. E. S. Kiernan, F. M. Kivlahan, C. J. H. Logan, A. G. McComb, J. A. W. McKelvey, W. H. McKinley, Vera A. McNeice, Olivia T. Maguire, K. Mahabir, J. R. Marshall, J. C. Meenan, Bridgid J. Milligan, Aileen P. Musgrave, B. A. Nixon, J. W. G. Nixon, M. J. O'Donnell, Joan S. Patterson, J. Price, M. R. Reesal, E. N. Russell F. G. Sheehan, R. McC. Slater, E. E. Spence, Rachel E. B. Thompson, Frances M. Vint, K. Watson, I. T. D. Williams, T. S. Wilson, Mary D. Young.

[1]With high commendation. [2]With second-class honours.

## ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At a meeting of the College held on October 7 Mrs. Jean le Brocquy was admitted to the Licence of Medicine and Midwifery.

At a meeting of the College held on November 4 Drs. Margery N. Cummins, Bridget V. Foley, and E. S. Mitchell were admitted as Licentiates and Members.

## ROYAL AUSTRALASIAN COLLEGE OF PHYSICIANS

The following candidates, having satisfied the Board of Censors in Australia, were admitted to Membership of the College by the President in October: John Ellard, J. F. Farrar, J. M. Greenaway, J. D. Harley, W. J. Hensley, George Michell, J. R. Read, C. A. Rigg, and J. H. E. Voss, of New South Wales; W. M. Barrett, G. P. Brew, Brian Clerehan, I. C. Goy, W. M. Maxwell, W. G. Miller, J. F. Niall, A. H. Penington, J. N. Santamaria, and Eric Stock, of Victoria; A. W. Steinbeck, of Queensland; Michael Drew and R. E. Russell, of South Australia; E. S. Bean and Marie Sadka, of Western Australia.

# Vital Statistics

### Unexplained Illness at School

No probable cause has yet been discovered for the illness recently affecting 63 out of 190 children aged 11–15 at Tottington Secondary Modern School, Lancs (*Journal*, November 26, p. 1338). We are indebted to Dr. C. H. T. Wade, divisional medical officer, for the following information.

The incidence of cases was as follows: November 15, 3; November 16, 20; November 17, 22 (plus 2 recurrences in children affected on November 16); November 18, 10; November 21, 8 (plus 19 recurrences in children previously affected). On November 17 one teacher said she felt dizzy. On November 28, when the school was reopened after being closed for some days, about 20 children complained of feeling slightly dizzy, but not much importance is attached to that.

The symptoms in the main outbreak were headache, dizziness, nausea, and abdominal pain. Some children fainted, one complained of blurred vision, and several had bradycardia. Moderate dilatation of the pupils was noted in some cases. Several of the children became restless and had intermittent periods of unconsciousness from which they could not be roused. Dryness of the mouth was also complained of, and excessive thirst was noted on regaining consciousness. No child was so ill as to require hospital treatment, but one who had collapsed twice was sent to hospital for examination. Nothing abnormal was found except a temperature of 99° F. (37.2° C.). Spectroscopic examination of the blood was negative for carboxyhaemoglobin. Three other children were subsequently examined, and the blood was negative spectroscopically. A local doctor has reported that he had five similar cases in adults in his practice, though no one living near the school is known to have been affected.

The disorder is considered not to have been caused by a virus and not to be psychological. Tests for carbon monoxide in the building were negative. The heating and draining systems were found to be satisfactory. No new paint had been applied anywhere. None of the fire extinguishers leaked, and they did not contain methyl bromide. The wax floor polish had not been applied for two months. In the warm cellar were 40 sacks of a floor-sweeping compound. These were analysed, with negative results. In particular, tests for organic phosphorus compounds were negative. A possibility being investigated is that the illness was due to an exceptionally heavy dose of insecticide on fresh vegetables. The investigation is being carried out in consultation with Dr. S. C. Gawne, county school medical officer, and Dr. M. T. Parker, of the Public Health Laboratory, Manchester. Apparently identical outbreaks occurred at West Hartlepool on November 8–9 and Lincoln on November 23.

### Influenza

There is no evidence yet of any large outbreak of influenza in Britain. From October 1 to November 19 influenza deaths in the 160 great towns of England and Wales have numbered 74, as compared with 73 in 1954, 81 in 1953, 79 in 1952, and 112 in 1951. Deaths from pneumonia (1,594) in the same period have been slightly higher than in 1951–4 (average 1,418).

### Typhoid in London

Eleven cases of typhoid fever are at present known in London among Poles, nearly all of whom attended a party in Acton on October 15. The homes of these 11 patients are in a fairly large area, roughly forming a sector of London and suburbs north-west of Westminster. It is thought possible that there may be other cases, possibly secondary cases, not yet identified. The first patient became ill on October 21.

### Industrial Accidents and Diseases

The number of workpeople (other than seamen) in the United Kingdom whose deaths from accidents in the course of their employment were reported in October was 114, compared with 136 in the previous month and 110 (revised figure) in October, 1954.

The numbers of cases of industrial diseases in the United Kingdom reported during October, 1955, were as follows: lead poisoning 4, anthrax 1, epitheliomatous ulceration 16, chrome ulceration 12; total 33. There were 2 deaths from epitheliomatous ulceration due to mineral oil.—*Ministry of Labour Gazette*, November, 1955.

### Week Ending November 19

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,046, whooping-cough 1,147, diphtheria 5, measles 2,445, acute pneumonia 373, acute poliomyelitis 174, dysentery 618, paratyphoid fever 14, and typhoid fever 9.

### Infectious Diseases

Infectious diseases were more prevalent in England and Wales during the week ending November 12. The rises in the numbers of notifications included 401 for food-poisoning, from 143 to 544, 225 for scarlet fever, from 786 to 1,011, 124 for whooping-cough, from 948 to 1,072, 74 for acute pneumonia, from 368 to 442, 53 for dysentery, from 482 to 535, and 28 for measles, from 2,327 to 2,355; the only fall of any size was 33 for acute poliomyelitis, from 259 to 226.

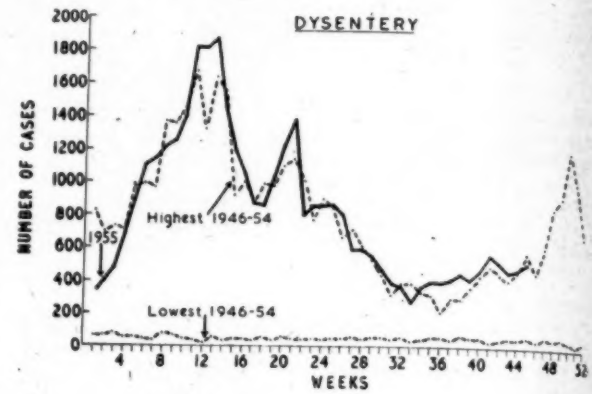
A small rise occurred in the incidence of scarlet fever in every region except London, where notifications fell from 76 to 49. The largest rises were Yorkshire West Riding 61, from 100 to 161, and Lancashire 31, from 171 to 202. The incidence of whooping-cough increased in every region except Wales, where the notifications fell from 94 to 67; the largest rise was Lancashire 40, from 120 to 160. The largest rises in the notifications of measles were 49 in Yorkshire West Riding, from 49 to 98, 40 in Hertfordshire, from 56 to 96, and 38 in Glamorganshire, from 347 to 385; the largest fall was 32 in Devonshire, from 295 to 263. 16 cases of diphtheria were notified, being 11 more than in the preceding week. Multiple notifications of diphtheria were recorded in Warwickshire, Birmingham C.B. 4, Lancashire, Liverpool C.B. 2, and London, Islington M.B. 2.

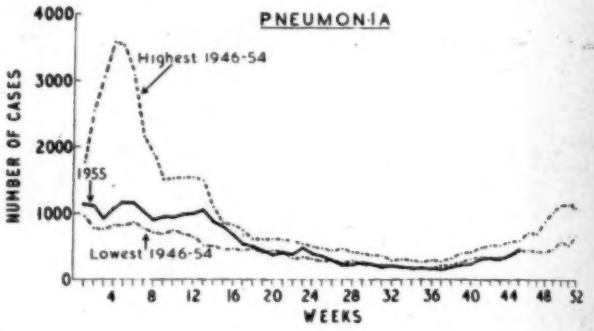
The rise in the incidence of dysentery was mainly due to a fresh outbreak of 92 cases in Yorkshire West Riding, Kirkburton U.D. The largest centres of infection during the week were Yorkshire West Riding 183 (Kirkburton U.D. 92, Leeds C.B. 29, Huddersfield C.B. 15, Bradford C.B. 14, Normanton U.D. 11), Lancashire 88 (Liverpool C.B. 36), Warwickshire 37 (Birmingham C.B. 21), London 36, Gloucestershire 20 (Bristol C.B. 20), and Middlesex 20. The largest outbreaks of food-poisoning notified during the week were Lancashire (Liverpool C.B. 186), Oxford (Oxford C.B. 63), Gloucestershire (Bristol C.B. 54), and Kent (Dover M.B. 48).

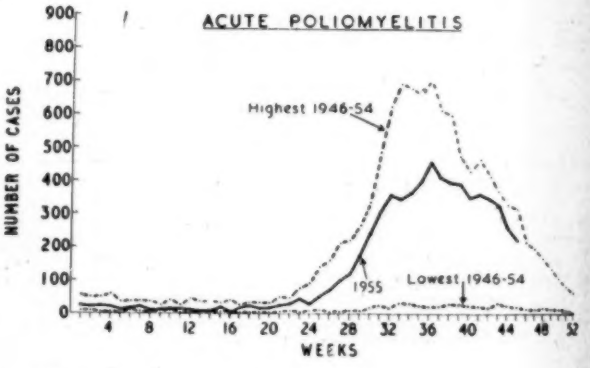
In Scotland the number of notifications of dysentery increased by 61, from 146 to 207. The largest returns were Glasgow 142 and Edinburgh 19.

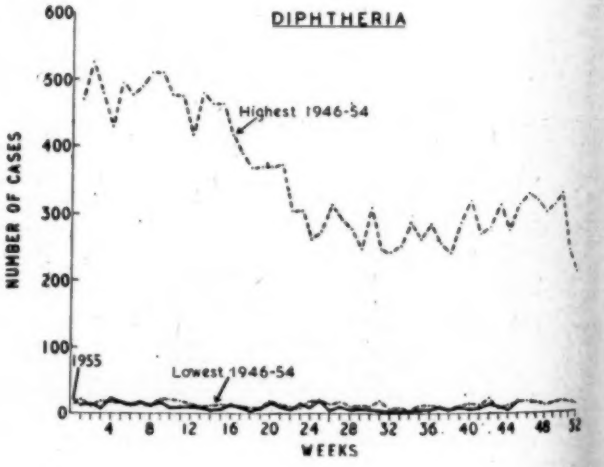
### Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases of certain diseases notified weekly in England and Wales. Highest and lowest figures reported in each week during the nine years 1946–54 are shown thus ------, the figures for 1955 thus ———. Except for the curves showing notifications in 1955, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.



## INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending **November 12** (No. 45) and corresponding week 1954.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the 160 great towns in England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

| CASES in Countries and London | 1955 | | | | | 1954 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Eng. & Wales | Lond. | Scot. | N. Ire. | Eire | Eng. & Wales | Lond. | Scot. | N. Ire. | Eire |
| Diphtheria | 16 | 3 | 9 | 0 | 5 | 17 | 2 | 2 | 0 | 4 |
| Dysentery | 535 | 36 | 207 | 7 | 4 | 575 | 52 | 184 | 3 | 2 |
| Encephalitis, acute | 2 | 0 | | 0 | | 3 | 0 | | 0 | |
| Enteric fever: | | | | | | | | | | |
| Typhoid | 5 | 1 | 1 | 0 | | 2 | 0 | 0 | 0 | 1 |
| Paratyphoid | 12 | 1 | 6(B) | 0 | | 11 | 1 | 1(B) | 0 | 0 |
| Food-poisoning | 544 | 37 | | 1 | | 190 | 21 | | 0 | |
| Infective enteritis or diarrhoea under 2 years | | | | 16 | 18 | | | | 16 | 12 |
| Measles* | 2,355 | 36 | 63 | 26 | 61 | 4,223 | 209 | 672 | 108 | 74 |
| Meningococcal infection | 32 | 1 | 13 | 0 | 1 | 26 | 2 | 16 | 2 | 1 |
| Ophthalmia neonatorum | 26 | 1 | 5 | 0 | | 27 | 0 | 10 | 0 | |
| Pneumonia† | 442 | 33 | 236 | 2 | | 432 | 30 | 141 | 5 | 3 |
| Poliomyelitis, acute: | | | | | | | | | | |
| Paralytic | 127 | 15 | 21 | 4 | 13 | 43 | 4 | 18 | 0 | 1 |
| Non-paralytic | 99 | 9 | | | | 24 | 3 | | | |
| Puerperal fever§ | 12 | 1 | 9 | 1 | | 214 | 37 | 9 | 1 | |
| Scarlet fever | 1,011 | 49 | 157 | 31 | 19 | 725 | 39 | 146 | 36 | 31 |
| Tuberculosis: | | | | | | | | | | |
| Respiratory | 677 | 66 | 121 | 22 | | 797 | 99 | 131 | 34 | |
| Non-respiratory | 109 | 4 | 18 | 0 | | 134 | 9 | 20 | 10 | |
| Whooping-cough | 1,072 | 62 | 94 | 92 | 80 | 1,939 | 103 | 152 | 22 | 41 |

| DEATHS in Great Towns | 1955 | | | | | 1954 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Eng. & Wales | Lond. | Scot. | N. Ire. | Eire | Eng. & Wales | Lond. | Scot. | N. Ire. | Eire |
| Diphtheria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dysentery | 0 | 0 | | 0 | | 0 | 0 | | 0 | |
| Encephalitis, acute | | 0 | | | 0 | | 0 | | | 0 |
| Enteric fever | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| Infective enteritis or diarrhoea under 2 years | 4 | 0 | 1 | 2 | 1 | 6 | 1 | 3 | 0 | 1 |
| Influenza | 18 | 2 | 0 | 0 | 0 | 15 | 2 | 1 | 0 | 0 |
| Measles | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 |
| Meningococcal infection | | 1 | 3 | | | | 0 | 1 | | |
| Pneumonia | 280 | 49 | 21 | 10 | 8 | 158 | 14 | 22 | 4 | 2 |
| Poliomyelitis, acute | 8 | 0 | 3 | | 0 | 3 | 1 | | | 0 |
| Scarlet fever | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 |
| Tuberculosis: | | | | | | | | | | |
| Respiratory | 62 | 9 | 6 | 1 | 3 | 98 | 14 | 10 | 1 | 4 |
| Non-respiratory | | 0 | 2 | 0 | 0 | | 1 | 12 | 1 | 0 |
| Whooping-cough | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Deaths 0–1 year | 196 | 28 | 24 | 11 | 20 | 192 | 21 | 24 | 5 | 5 |
| Deaths (excluding stillbirths) | 5,375 | 795 | 583 | 103 | 166 | 5,023 | 731 | 570 | 106 | 162 |
| LIVE BIRTHS | 7,051 | 1107 | 802 | 213 | 262 | 6,483 | 967 | 799 | 167 | 328 |
| STILLBIRTHS | 174 | 23 | 24 | | | 180 | 20 | 29 | | |

* Measles not notifiable in Scotland, whence returns are approximate.
† Includes primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

# Medical News

**Seven Million Dollars for Medical Education.**—The Commonwealth Fund announced from New York on Monday that it is making grants totalling $7,150,000 to ten university medical schools in the United States. These grants are from capital, and are additional to the two million dollars from current income given during the last fiscal year. In explaining the purpose of this great benefaction, the Fund states its conviction of "the compelling need for medical schools to clarify their educational objectives in the post-war world." The grants are to help the recipient schools to "institute or maintain creative programmes in medical education," and the schools have been told they may use the grants as they deem wise. The medical schools receiving grants are Chicago, Columbia, Cornell, Emory, Harvard, New York University, Southern California, Tulane, Western Reserve, and Yale. The largest grants—a million dollars each—go to Harvard and Western Reserve. The Commonwealth Fund was established in 1918 by Mrs. Stephen V. Harkness with the motto "To do something for the welfare of mankind." In recent years the Fund's primary interests have been in the field of health, in particular in medical education, medical research, and community health.

**Opening of Wellcome Museums at R.C.S.**—Sir HENRY DALE, O.M., F.R.S., chairman of the Wellcome Trustees, formally opened the Wellcome Museums of Anatomy and Pathology at the Royal College of Surgeons, Lincoln's Inn Fields, on November 23. The museums, which lie on three floors above the Great Hall of the College and coincide with it in extent, are the outcome of a generous gift of £100,000 from the Wellcome Trust. Speaking at the opening ceremony, Sir Henry Dale said that over ten years ago the then president, Lord Webb-Johnson, had shown him the plans for the extension of the College. "The College had not been content to grieve over its tragic losses through the shattering attack from the air in the spring of 1941." It had planned for no mere revival and replacement but for a generously conceived expansion. Nor had it been difficult, continued Sir Henry, to persuade the Wellcome Trustees that the restoration and extension of the College's museums of anatomy and physiology, both human and comparative, and of pathology were projects that would have commended themselves to the founder of the Trust, the late Sir Henry Wellcome, himself a great creator of medical museums and an honorary fellow of the College. Sir Henry then asked the president of the Royal College of Surgeons, Sir Harry Platt, to accept the new museums for the use of the College and "of the multitude who will here be engaged in study and in researches in those basic sciences on the foundation of which John Hunter first raised the craft of surgery to the dignity of a learned profession." Sir HARRY PLATT, replying, expressed the thanks of the College to the Wellcome Trustees for their magnificent gift. The museums were then thrown open for inspection. On the first of the museum floors are pathology specimens that survived war damage, together with more recent additions; the middle floor, which is at present only partly occupied by exhibits, includes selections from the war collection and the Hunterian collection; the top floor houses the Hunterian physiological and comparative anatomical collection and other anatomy specimens.

**Royal College of Obstetricians and Gynaecologists.**—At the meeting of the council on November 26 it was announced that the Wellcome Trust had offered a grant of £25,000 to meet the cost of the museum in the new College, and a further £5,000 for two research rooms. The council expressed its deep appreciation of these gifts. The museum will be named "The Wellcome Museum of Obstetrics and Gynaecology." The council also authorized the establishment of a regional council in South Africa. This is the

fourth such council to be formed, the others being in Australia, Canada, and New Zealand. The officers of the College are *ex officio* members of the regional councils, the remainder being elected locally.

**London University.**—Among the six distinguished persons who received honorary degrees on the occasion of the installation of QUEEN ELIZABETH THE QUEEN MOTHER as Chancellor of London University on November 24 were Lord MALVERN, Prime Minister of Rhodesia and Nyasaland, who became a doctor of laws; and Sir RICHARD LIVINGSTONE, whose notable address at the First World Conference on Medical Education was printed in this *Journal* (1953, **2**, 454). He was made a doctor of literature.

**Muscular Dystrophy Group.**—Under the auspices of the Central Council for the Care of Cripples a Muscular Dystrophy Group has been formed as a friendly and charitable organization for the welfare of sufferers, to promote their social and economic interests, and to encourage research and experimental work. The first general meeting was held in London on November 22, under the chairmanship of Sir HARRY PLATT, P.R.C.S. It was only during the last ten years or so, he said, that certain groups of the physically disabled had been brought together, thus making the nation more conscious of what remained to be done in the mitigation of disablement. In the United States a Muscular Dystrophy Association had already raised three million dollars for a research centre in New York. Dr. J. N. WALTON said that so far research had not led to any cure. He estimated that about 2,000 people in Britain were suffering from the muscular dystrophies. The meeting then appointed a committee, with Sir Harry Platt as president and Dr. Walton as hon. secretary; also a medical advisory committee and a medical auxiliaries committee. The address of the Group is Central Council for the Care of Cripples, 34, Eccleston Square, London, S.W.1.

**Psoriasis.**—Research into the aetiology and treatment of psoriasis is being carried out in the U.S.A. by the Biological Sciences Foundation, Washington. A conference sponsored by the Foundation was held at the New York Academy of Sciences on October 17, when recent developments in treatment were discussed. Useful data on the subject have been collected as a result of a questionary circulated to dermatologists and other medical men in the U.S.A., and it is hoped to send this to British dermatologists, who may be able to contribute opinions or send reprints of papers they have published.

**Heberden Society.**—The annual dinner was held on November 25 with the president, Professor R. E. TUNBRIDGE, in the chair. In proposing the health of the Society, Mr. L. FARRER-BROWN referred to Lord Nuffield's interest in doing something to solve the problems of the rheumatic diseases. Comparison between the annual report of the Society to-day with that of 10 years ago showed what great progress had been made. In response, Dr. J. V. WILSON paid a graceful tribute to Lord Nuffield, who was present at the dinner, for the help he had given to rheumatology. The toast, "The Guests," was proposed by the president and responded to by Sir HUBERT HOULDSWORTH.

**Ilford Medical Society.**—The golden jubilee of the Ilford Medical Society was celebrated by a ball at the Royal College of Surgeons on October 20; the occasion was also marked by the gift to the Society of a presidential badge by the jubilee president, Dr. J. ARTHUR MOODY. Some 250 guests were received by Dr. and Mrs. Moody. Sir CECIL WAKELEY proposed the toast of the Society. During the evening the Arts Educational Ballet Group gave a performance.

**Anglo-French Exchange Bursaries.**—Applications are invited for bursaries under an exchange scheme, arranged by the French Embassy, between the Institut National d'Hygiène, Paris, and the Ciba Foundation, London. The grants, valued at 60,000 francs a month tax free and tenable for from two to four months, are to enable young British doctors to obtain clinical experience or carry out research in France. Preference will normally be given to candidates holding teaching appointments or otherwise in a position to pass on their experience. Application forms and further details may be obtained from Dr. G. W. WOLSTENHOLME, Ciba Foundation, 41, Portland Place, London, W.1. The closing date for applications is February 4, 1956.

**St. Andrews University.**—The following appointments, all to be held at Queen's College, Dundee, were announced after the university court on November 22: Dr. WILLIAM WALKER, lecturer in therapeutics; associated with the post is an appointment as honorary assistant physician at Maryfield Hospital. Mr. WILLIAM F. WALKER, F.R.C.S., lecturer in surgery; and an appointment as honorary assistant surgeon at the Dundee Royal Infirmary. Mr. A. BUCHAN, F.R.C.S.Ed., and Dr. JAMES S. FREW have been appointed honorary lecturers in midwifery and gynaecology and therapeutics respectively.

**Society of British Neurological Surgeons.**—At its meeting on November 11 the Society of British Neurological Surgeons presented to Sir GEOFFREY JEFFERSON, F.R.S., his portrait painted by Sir Gerald Kelly, R.A. Professor NORMAN DOTT said that the portrait was a token of the gratitude, respect, and affection which all members felt for Sir Geoffrey; further evidence of this was shown by the fact that Sir Geoffrey was now serving a second term of office as president, having previously held that office for the two years 1934–6.

**R.A.F. Medical and Dental Branches Dinner.**—The 25th annual dinner was held at the Savoy Hotel, London, on November 18. The Director-General of the R.A.F. Medical Services, Air Marshal Sir JAMES KILPATRICK, in his address outlined the many changes that had taken place since the first dinner, held on November 16, 1921. The toast of "The Guests" was proposed by Wing Commander A. C. CAMM. In his reply Sir RUSSELL BRAIN, P.R.C.P., spoke of the close and happy ties which had always existed between Service and civilian medicine, and emphasized the need for continued co-operation in the future.

**Chair of Surgery, Khartoum.**—Mr. B. B. HICKEY, F.R.C.S., is relinquishing his tenure of the chair of surgery at the Kitchener School of Medicine, Khartoum, at the expiry of his three-year leave of absence from the Welsh Regional Hospital Board. He leaves Khartoum on December 6 and will return to his previous consultant appointment in the Glantawe area.

**Mr. R. J. V. Battle, F.R.C.S.,** has been appointed by the Army Council as honorary consultant in plastic surgery to the Army at Home in succession to Professor T. POMFRET KILNER.

## COMING EVENTS

**British Institute of Radiology.**—Annual congress at Caxton Hall, Westminster, December 8 and 9. The scientific programme includes an address by Sir JOHN COCKCROFT on the future role of atomic energy; symposia on the hazards of ionizing radiations, pulmonary fibrosis and collagen diseases of the lungs, and the influence of histological structure on radiosensitivity; and papers on clinical applications of image intensification. Further details from the Institute, 32, Welbeck Street, London, W.1.

**Institute of Almoners.**—Annual meeting at the Royal College of Surgeons, Lincoln's Inn Fields, December 9, at 6 p.m. Sir DAVID LINDSAY KEIR will speak on "The Art and Science of being an Almoner."

**Tudor Edwards Lecture.**—Sir GEOFFREY MARSHALL will lecture on "Tudor Edwards: His Contribution to the Study of Diseases of the Chest" at the Royal College of Physicians, Pall Mall East, on December 15 at 5 p.m.

**Tenth International Congress for Speech and Voice Therapy.**—September 3–7, 1956, at Barcelona. Those wishing to submit papers should notify the organizing secretary, Dr. J. PERELLÓ, Provenza, 319, Barcelona (9), not later than January.

## NEW ISSUES

**British Heart Journal.**—The next issue (Vol. 17, No. 4) is now available. The contents include:

THE EFFECTS OF 1-HYDRAZINOPHTHALAZINE ON THE PULMONARY CIRCULATION IN MITRAL DISEASE. J. D. Aitchison, W. I. Cranston, and Elizabeth A. Priest.
THE PRODUCTION OF BLOCK AND AURICULAR FIBRILLATION IN THE HEART-LUNG PREPARATION BY INHIBITORS OF CHOLINESTERASE. J. H. Burn, E. M. Vaughan Williams, and J. M. Walker.
RUPTURE OF THE INTERVENTRICULAR SEPTUM. R. G. S. Malone and W. E. Parkes.
RECORDINGS OF PRESSURE OBTAINED DURING CATHETERIZATION OF THE GREAT CARDIAC VEIN. Peter Harris and J. L. V. Summerhayes.
ELECTROCARDIOGRAPHY IN MITRAL VALVULAR DISEASE. Hugh R. L. Fraser and Richard Turner.
A CASE OF TAKAYASHU'S SYNDROME: THE PULSELESS DISEASE. L. Trias de Bes, J. G. Sanchez Lucas, and F. Ballesta Barcons.
THE NORMAL AND ABNORMAL INTER-ATRIAL SEPTUM. Reginald Hudson.
SPATIAL VECTORS AND THE ANGLES THEY ENCLOSE. E. J. Fischmann.
CORONARY DISEASE: A PATHOLOGICAL STUDY. P. J. D. Snow, A. Morgan Jones, and K. S. Daber.
PATENT DUCTUS ARTERIOSUS: SOME NOTES ON PROGNOSIS AND ON PULMONARY HYPERTENSION. Maurice Campbell.
CONTROL OF QUINIDINE DOSAGE. H. E. Archer, David Weitzman, and Hedy L. Kay.
RUPTURE OF ANEURYSM OF AORTIC SINUS (OF VALSALVA) INTO THE RIGHT SIDE OF THE HEART. Samuel Oram and Terence East.
THE DIAGNOSIS OF TRICUSPID STENOSIS. Ronald Gibson and Paul Wood.

Issued quarterly; annual subscription £2 2s.; single copy 12s. 6d.; obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

**Medical and Biological Illustration.**—The next issue (Vol. 5, No. 4) is now available. The contents include:

A. J. BALLANTYNE. Gabriel Donald.
ENDOSCOPIC PAINTING. Dorothy M. Barber.
GLASS TRACING. L. N. Staniland.
A STEREO-CAMERA FOR MEDICAL PHOTOGRAPHY. David D. Donaldson.
FLUORESCENCE PHOTOGRAPHY IN COLOUR. David Tredinnick.
PHOTOGRAPHY OF THE CEREBRAL VESSELS IN THE LIVING RAT. F. B. Byrom.

Issued quarterly; annual subscription £2 2s.; single copy, 12s. 6d.; obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

## SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

### Monday, December 5

INSTITUTE OF CARDIOLOGY.—9.30 a.m., Sir John Parkinson: Heart Attacks.
INSTITUTE OF CHILD HEALTH.—5 p.m., Professor C. C. de Silva: Undernutrition and Kwashiorkor in Ceylon.
LONDON AMATEUR BOXING ASSOCIATION.—At Great Northern Hotel (Room 17, King's Cross, N.W., 8 p.m., Dr. E. S. Clarke: Head Injuries.
LONDON UNIVERSITY.—At London School of Hygiene and Tropical Medicine, 5.15 p.m., Manson Lecture by Dr. Muriel Robertson: Some Aspects of Trypanosomiasis, with Special Reference to the Work of Sir David Bruce.
NUTRITION SOCIETY.—At Royal Society of Medicine, 5 p.m., Professor H. J. Deuel, jun. (California, U.S.A.): Fat as an Essential Component of Diet.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—4 p.m., Dr. R. Daley: Aortic Stenosis.
ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE.—5 p.m., Harben Lecture by Sir Ernest Rock Carling: Radiological Protection (illustrated).

### Tuesday, December 6

BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, 5.30 p.m., Professor D. Slome: Physiology of Nasal Circulation.
CHELSEA CLINICAL SOCIETY.—At Rembrandt Hotel, S.W., 8.30 p.m., discussion to be opened by Dr. R. Donald Teare and Sir Ronald Howe, J.P.: Murder (illustrated by lantern slides).
INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. B. F. Russell: Neurodermatitis.
●INSTITUTE OF NEUROLOGY.—5.30 p.m., Mr. Harvey Jackson: Intractable Pain and its Surgical Treatment.
●INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—12 noon, Mr. H. R. MacLennan: Contracted Pelvis.
LONDON UNIVERSITY.—At King's College Hospital Medical School, 4.30 p.m., Thomas Percy Legg Memorial Lecture by Sir Russell Brock: Present Position of Cardiac Surgery.
ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 p.m., FitzPatrick Lecture by Dr. C. E. Newman: Evolution of Medical Education in the Nineteenth Century—External Reform and the Medical Act.
ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE.—5 p.m., Harben Lecture by Sir Ernest Rock Carling: Radiological Protection (illustrated).
ST. MARY'S HOSPITAL MEDICAL SCHOOL.—At Wright-Fleming Theatre, 5 p.m., Mr. D. H. MacLeod: Endometriosis.
WEST END HOSPITAL FOR NEUROLOGY AND NEUROSURGERY.—5.30 p.m., Mr. K. I. Nissen: Orthopaedic Surgery of Spastic Paralysis.

### Wednesday, December 7

EUGENICS SOCIETY.—At Royal Society, Burlington House, W., 5.30 p.m., Professor H. J. Eysenck, Ph.D.: Nature and Inheritance of Extraversion.
INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. R. W. Riddell: Moniliasis.
INSTITUTE OF DISEASES OF THE CHEST.—5 p.m., Sir Russell Brock: Surgery of the Aorta and Aortic Valve.
INSTITUTE OF LARYNGOLOGY AND OTOLOGY.—5.30 p.m., Professor F. C. Ormerod: Surgery of Pharyngeal Carcinoma.
●INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—3 p.m., Mr. P. Malpas: Prolapse.
INSTITUTE OF UROLOGY.—4.30 for 5 p.m., Dr. A. H. Harkness: Non-gonococcal Urethritis.
NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY.—At 14, Welbeck Street, W., 6 p.m., Dr. J. C. Penton: Recent Developments in the Application of Psychology to the Army's Problems.
ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—5 p.m., Weild Lecture by Mr. L. N. Pyrah: Hormones in the Treatment of Cancer, with Special Reference to the Adrenal Gland.
ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE.—5 p.m., Harben Lecture by Sir Ernest Rock Carling: Radiological Protection (illustrated).
ST. MARY'S HOSPITAL MEDICAL SCHOOL.—At Wright-Fleming Theatre, 5 p.m., Dr. J. D. W. Pearce: lecture demonstration in psychiatry.

### Thursday December 8

ALFRED ADLER MEDICAL SOCIETY.—At 11, Chandos Street, W., 8 p.m., Dr. E. K. Ledermann: Review of the Principles of Adlerian Psychology.
BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, 5.30 p.m., Dr. Audrey V. Smith: Experimental Hypothermia in Animals.
CHADWICK TRUST.—At Wright-Fleming Institute, St. Mary's Hospital Medical School, W., 5 p.m., Malcolm Morris Memorial Lecture by Dr. R. M. B. MacKenna: Industrial Dermatitis.
●INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—4.30 p.m., Mr. R. A. Brews: Vesicular Mole and Chorion Epithelioma.
ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 p.m., FitzPatrick Lecture by Dr. C. E. Newman: Evolution of Medical Education in the Nineteenth Century—Triumph of the General Practitioner and the Advent of Laboratory Medicine.
ROYAL SOCIETY OF ARTS: COMMONWEALTH SECTION.—5.15 p.m., Dr. R. S. F. Hennessey: Some Social Effects of Tropical Medicine Within the Commonwealth.
ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, Portland Place, W., 7.30 p.m., Dr. P. H. Abbott: Mycetoma in the Sudan.
ST. ANDREWS UNIVERSITY.—At Physiology Department, Queen's College, Dundee, 5 p.m., Dr. K. Cowan: The Changing Scene.
ST. GEORGE'S HOSPITAL MEDICAL SCHOOL.—5 p.m., Sir W. P. Mallinson: postgraduate demonstration in psychiatry.
WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At West London Hospital, 5.30 p.m., special meeting.

### Friday, December 9

●INSTITUTE OF DERMATOLOGY.—5.30 p.m., clinical demonstration by Dr. P. J. Hare: Fungous Diseases.
INSTITUTE OF DISEASES OF THE CHEST.—5 p.m., clinical demonstration by Dr. J. L. Livingstone.
●INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—2 p.m., Professor J. F. Cunningham: Abdominal Pregnancy.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—(1) 2 p.m., Professor C. H. Gray: Jaundice. (2) 4 p.m., Professor A. W. Woodruff: Dysentery and its Management.
ROYAL MEDICAL SOCIETY, EDINBURGH.—8 p.m., Dissertation by Mr. P. M. Barnes: Blood Transfusion—Past and Present.
ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—At Royal Faculty of Physicians and Surgeons of Glasgow, 8.30 p.m., Dr. A. K. Boyle and Dr. D. B. Murray: Studies in Hypothermia.

### Saturday, December 10

KENT PAEDIATRIC AND CHILD HEALTH SOCIETY.—At Children's Department, Farnborough Hospital, Kent, 3 p.m., Mrs. Barbara Naish: Accidents at Home.
SOUTH-EAST METROPOLITAN REGIONAL TUBERCULOSIS SOCIETY.—At London School of Hygiene and Tropical Medicine, 10.15 for 10.45 a.m., Dr. L. E. Houghton: Use of Adrenal Corticosteroids in the Treatment of Pulmonary Tuberculosis.

### Sunday, December 11

SIGERIST SOCIETY.—At Bedford Hotel, Southampton Row, W.C., 3 p.m., Guest Speaker, Dr. A. D. Morris.

## APPOINTMENTS

FINN, ANDREW B. R., M.B., B.Ch., D.P.H., Medical Officer of Health, Boroughs of Guildford and Godalming, and Divisional Medical Officer, South-western Division of Surrey.

INSTITUTE OF CHILD HEALTH.—J. E. Hall, M.B., Ch.B., Lecturer in Physiology; J. M. Tanner, M.D., Ph.D., D.P.M., Lecturer in Child Health, Child Study Centre; A. D. M. Jackson, M.D., M.R.C.P., D.C.H., Assistant to the Nuffield Professor of Child Health.

MCFARLAND, W. D. H., M.B., B.Ch., D.P.H., Medical Officer of Health, Borough of Stafford, and Medical Officer to the Stafford Area Health Committee.

PEARCE, R. D., M.R.C.S., L.R.C.P., D.P.H., Medical Officer of Health Clacton, Frinton, Walton, Brightlingsea, and Tendring, and Assistant County Medical Officer, Essex County Council.

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTHS

**Martin.**—On November 19, 1955, to Rosemary, wife of Dr. Geoffrey Martin, 9, King Street, Chester, a son.

### DEATHS

**Halsted.**—On November 1, 1955, at Southampton General Hospital, William Wilfrid Halsted, M.R.C.S., L.R.C.P., of The Barn, Ashurst, Lyndhurst, Hants, aged 83.

**Jackson.**—On November 5, 1955, at his home, "Morningside," Crossley Road, Rhos-on-Sea, Denbigh, William Taylor Jackson, M.R.C.S., L.R.C.P.

**MacArthur.**—On November 3, 1955, in Edinburgh, Donald Gregor MacArthur, M.D., of 16, Nelson Street, Edinburgh.

**Patey.**—On November 3, 1955, at 86, Kidmore Road, Caversham, Reading, Berks, Percy Edward Hughes Patey, M.R.C.S., L.R.C.P., aged 77.

**Paton.**—On November 5, 1955, at Allermuir, 5, Seabank Road, Prestwick, Ayrshire, James Muir Nelson Paton, M.B., C.M., formerly of Marple, Cheshire, aged 85.

**Wolfe.**—On November 1, 1955, Hermon Wolfe, M.D., D.P.H., of Otley, Yorks.

# Any Questions?

*We publish below a selection of those questions and answers which seem of general interest. It is regretted that it is not possible to supply answers to all questions submitted.*

### Oestrogen Therapy in Coronary Disease

**Q.**—*Recent reports suggest that oestrogens may be helpful in the management of patients with coronary disease. Is prolonged oestrogen treatment advised for patients with angina pectoris or who have had a coronary thrombosis? If so, what is the dosage, and is it the same for women as for men?*

**A.**—Coronary disease with angina and/or myocardial infarction is at least three times as common in males as in females. Pre-menopausal women are almost immune to coronary disease. There is a sex difference in the chemical arrangement of lipids in the blood which could possibly bear some relation to the increased frequency of coronary atheroma in the male. For example, in the female most of the lipid is kept in solution as phospholipid, but in the male a larger fraction exists as free cholesterol. Castrated males, or males given feminizing doses of oestrogens, show a "female" pattern in their blood lipid physical chemistry. Trials are now in progress with large doses of oestrogens in patients who have had clinical evidence of coronary artery disease, but the results will have to be judged on long-term studies of morbidity and mortality.

Ethinyloestradiol is the substance mainly used. To get the necessary biochemical change very large doses have to be given, comparable to those used in the treatment of prostatic carcinoma—for example, 1 mg. per day or more. Nausea and vomiting may occur, but this usually disappears as the drug is continued. Painful enlargement of the breasts will also occur. Long-term heavy dosage of oestrogens in the post-menopausal female would raise problems requiring the co-operation of the gynaecologist, and, so far, the treatment trials seem to be limited to males. Biochemical control of the effects is required, at least while the treatment is still undergoing trial.

Measures directed to altering the blood lipids cannot renew dead myocardium nor can they cure ischaemic heart failure. It must be emphasized that this "treatment" is directed to the prevention of further attacks of myocardial infarction and to restricting the progression of atherosclerosis. We shall only know if oestrogens have a preventive value after a long period of controlled and statistically tested studies.

### Epidemiology of Influenza

**Q.**—*What are the current views on the epidemiology of influenza and on the organisms causing it? What is the explanation for the apparent cyclical nature of the influenza epidemics?*

**A.**—There are two chief opinions concerning the epidemiology of influenza. One view is that the influenza virus persists in the community either in some undiscovered latent form of infection or by a series of sporadic cases. From this endemic focus, increased prevalence builds up into epidemic proportions when susceptibility of the population permits. The second view is that the virus is peripatetic and exists by causing a continuous chain of infection first in the northern and then in the southern hemispheres. On this theory epidemics are imported into the susceptible population from other infected areas. There is much evidence favouring the latter view, particularly in the case of island communities such as Great Britain, but evidence in support of the former view also exists, and it is possible that both views are correct.

The cyclical incidence is explained partly by the transient immunity after an attack of influenza and partly by antigenic modifications of the virus from one epidemic to the next. The existence of a sufficient number of persons with low neutralizing antibodies for the virus or with antibodies directed against viruses causative of past epidemics, but with less power against the modified antigens of new virus variants, is a feature of herd susceptibility which favours epidemic prevalence.

Three major groups of the influenza viruses are now known, called A, B, and C, and both the A and B groups are composed of many antigenically distinct races. There is a belief that viruses associated with extensive epidemics may possess heightened pathogenic properties. Influenza A viruses have been the cause of most of the major and some of the minor epidemics studied in the past 20 years. Influenza B viruses are more often associated with sporadic cases, localized outbreaks, and minor epidemics than with major outbreaks. The epidemiology of influenza C infection is little understood, but the virus has been found more often in sporadic cases of respiratory infection than as a cause of epidemics. Both influenza B and C viruses appear to be more important in childhood than in adult infections, whereas influenza A attacks people of any age. Subclinical infections probably occur as often as cases with clinical illness in all three forms of influenza.

### Local Lesions from Contraceptives

**Q.**—*Do chemical spermicides or rubber contraceptive diaphragms ever cause cervicitis or vaginitis? If so, how is a suspected diagnosis confirmed? Is there any evidence that such lesions may be precancerous?*

**A.**—These contraceptive methods do not of themselves cause infection of the cervix or vagina, nor have they been shown to predispose to cancer. An individual woman, however, may exhibit an idiosyncrasy to a drug—for example, an arsenical—or to a substance—for example, a type of rubber—introduced into the vagina, with a resultant inflammatory reaction, which may be severe. It is possible for this reaction so to lower local resistance that an infection may subsequently develop, but this is not common. The diagnosis of the origin of the local discomfort is usually obvious from the rapid sequence of cause and effect.

### Operative Treatment of Aortic Stenosis

**Q.**—*What is the present operative mortality in cases of congenital aortic stenosis? What factors render a case suitable or unsuitable for operation?*

**A.**—The term "congenital aortic stenosis" is inexact. If the sufferer is a child or young adult the outlook is better, but many cases of congenital aortic stenosis do not present until late in life. Again, the mortality varies greatly with the stage in the disease at which operation is performed. If done early, that is before significant symptoms, the mortality should lie between 5% and 10%. If significant symptoms have developed it could be between 10% and 20%. If features of left ventricular failure or of right-sided failure have appeared the risk rises steeply to at least 50%.

Operation is obviously desirable as soon as possible once there is evidence of significant left ventricular obstruction. Unfortunately many of these patients do not complain of symptoms and are watched for many years, often until the chance of operative relief has passed. It is especially desirable to recognize the need for operation, if possible, before the valves have become calcified, as this greatly impairs the chance of a good result.

In a child or young adult even minor disability should point towards operation; if this is accompanied by significant clinical, radiological, and electrocardiographic evidence of enlargement of the left ventricle, then the case is strengthened. If the E.C.G. shows a left strain pattern, and especially if this has developed under observation, the indications are great.

The strongest deciding factor in favour of operation would be the knowledge of the pressure in the left ventricle and of the gradient across the aortic valve. For instance, if it were known that the left ventricular systolic pressure were 200 mm. and the aortic pressure 120 mm., it should be clear that operation must be done, because the left ventricle of a child or young person could not stand exposure for many years to such a strain. This information can be obtained by left atrial puncture and passage of a fine polythene catheter through the needle into the left ventricle or even by direct left ventricular puncture. Clearly such methods are of restricted applicability, and thus we are to a great extent limited in a more exact selection of cases for operation.

The factors rendering a case unsuitable for operation are chiefly severe associated aortic regurgitation, heavy valve calcification (not all cases), and, above all else, left ventricular failure or right-sided heart failure that has not responded satisfactorily to treatment. It is probable that when severe failure has once occurred, even if remedied, operation is almost completely useless.

### Chlorpromazine and Exfoliative Dermatitis

**Q.**—*A menopausal woman was put on chlorpromazine for tension headaches. Two days later her right ring finger "went dead" for 48 hours. Then it and the whole of the other hand shed the superficial layer of epidermis; so did her feet. Is this a recognized side-effect of chlorpromazine, and, if so, should the drug be stopped?*

**A.**—The occurrence of exfoliative dermatitis as a result of taking chlorpromazine is not a recognized side-effect. However, chlorpromazine has been in use for only two or three years, and it is not surprising that new side-effects are still being described. What can be said to be surprising is that a substance containing the phenothiazine nucleus can be taken by so many persons without harmful effects occurring much more commonly than they do. From the fact that the loss of epidermis occurred within two days after the patient began to take chlorpromazine it seems reasonable to conclude that the drug should be stopped.

### Tinea of Vulva

**Q.**—*What treatment is recommended for tinea of the vulva? The patient has had tinea pedis on and off for years, but this is not now troublesome.*

**A.**—Although the condition of the feet is not now troublesome, it is probably the primary lesion from which the infection or allergic reaction of the vulva arises. Prolonged and intensive treatment of the feet by the usual methods is therefore essential to the successful treatment of the other areas of skin. There are now many proprietary fungicidal ointments and powders available, and these mostly contain mercury in some form. They vary, however, in their effectiveness in different patients, and several should be tried in turn until a suitable one is found. Castellani's paint (magenta paint, *B.P.C.*), and mercurochrome in the form of 1% aqueous solution, painted on the vulva are other possibilities.

As an alternative to mercury, salicylic acid powder or preparations containing it can be tried, and also undecylenic acid, although the latter is sometimes too irritant for the vulva itself. Before any preparations are applied the vulva should be washed thoroughly and dried carefully. Treatment must be regular and continued for a long time, and care must be taken to sterilize the clothing. Underclothes should be worn loose.

Some dermatologists advise small doses of superficial *x*-ray therapy to the vulva for tinea infection, but the writer is opposed to this except as a last resort. The vulva is extremely sensitive to *x* rays, and treatment usually gives only temporary relief, while repeated radiotherapy can produce permanent skin changes which in themselves can cause the most resistant pruritus.

### Treatment of Pneumococcal and Influenzal Meningitis

**Q.**—*(a) In view of the availability of the tetracycline antibiotics is it still justifiable to give intrathecal penicillin in pneumococcal meningitis? (b) What is the best treatment for influenzal meningitis? In view of its known toxicity, is it justifiable to give streptomycin in this condition?*

**A.**—(*a*) There is still some doubt about the most effective treatment of pneumococcal meningitis, but undoubtedly good results are obtained in many cases by the use of intrathecal penicillin together with intramuscular penicillin and oral sulphonamides. Some patients have recovered when intrathecal penicillin has not been used, the only antibiotic being a mega unit of penicillin every two hours by intramuscular injection. It seems quite clear that penicillin and chlortetracycline should not be given together, as these two antibiotics are antagonistic.[1] For routine treatment it is probably best to continue the use of intrathecal penicillin until more definite information is available on series treated with systemic penicillin alone or with oral chlortetracycline alone.

(*b*) Chloramphenicol orally is considered to be the antibiotic of choice in haemophilus meningitis, but good results have also been reported from the combined use of intramuscular streptomycin, intrathecal streptomycin, and oral sulphadiazine—for example, McKendrick[2] reported only one death in a series of 17 cases treated in this way.

REFERENCES

[1] Lepper, M. H., and Dowling, H. F., *Arch. intern. Med.*, 1951, **88**, 489.
[2] McKendrick, G. D. W., *Lancet*, 1954, **2**, 510.

### Advice for a Collier with Simple Pneumoconiosis

**Q.**—*What considerations should decide whether a collier with mild or moderate pneumoconiosis, but who feels fit for his usual work, should (a) leave the mining industry, (b) transfer to mine work in a less dusty atmosphere—e.g., at the surface—or (c) continue in the work he is used to? (a) and (b) would often halve the man's income.*

**A.**—The advice given to a collier with simple pneumoconiosis depends on the degree of the condition, its rate of advance, and the subject's age. The aim is to protect him, so far as practicable, from the risk of developing complicated pneumoconiosis with its attendant respiratory disability. It is known that complicated pneumoconiosis rarely develops in a case with less than Category 2 simple pneumoconiosis and also that the attack rate of the complicated disease on a given background of simple pneumoconiosis is higher in young men. Thus, if a young man of 25 develops Category 1 simple pneumoconiosis, he may be advised to work underground only under "approved" dust conditions or even to leave the industry. On the other hand, the man of 50 with a Category 2 radiograph may well be allowed to remain at his work. Young men with complicated pneumoconiosis should usually be advised to leave dusty occupations.

The decision whether a man should seek a surface job in the mines or leave the industry altogether depends on his inclination and age. In recent years more attention has been paid to providing skilled work in "approved" dust conditions (in mines other than anthracite with less than 850 particles/c.c. of size 1–5 $\mu$) either underground or on the surface. If such work is not available to a young man with simple pneumoconiosis, he should, in general, be urged to train for a new skilled occupation not demanding excessive physical exertion rather than to accept unskilled surface work. On the other hand, it is relatively difficult for older men with pneumoconiosis to train for a new occupation, and they often prefer a surface job in the industry which they know. In advising any man with pneumoconiosis about his employment it should be appreciated that some increase in dyspnoea must be expected with increasing age, and that should complicated pneumoconiosis occur this disability may become severe.

### Hormone Therapy in the Muscular Dystrophies

**Q.**—*Have adrenocortical hormones been tried in the treatment of the muscular dystrophies, and, if so, with what results?*

**A.**—This question comes at a time when the pathology of the muscular dystrophies is under active investigation. Nattrass[1] has drawn attention to certain cases of apparent muscular dystrophy in which recovery has occurred and has suggested that the underlying lesion is in fact a polymyositis. In such patients cortisone might be expected to be of value. Shy and McEachern[2] described a favourable response to cortisone in patients with menopausal muscular dystrophy,[3] but Adams, Denny-Brown, and Pearson[4] consider the condition to be polymyositis. If this question is asked with reference to a particular patient the writer would advise his or her referral to a neurological clinic in order to determine whether muscle biopsy is indicated. The changes found in the muscle would be a clear guide to the likelihood of cortisone therapy proving helpful. The investigation would hardly be worth while in an advanced case. The institution of cortisone treatment without muscle biopsy is to be deprecated in the present state of knowledge.


REFERENCES

1 Nattrass, F. J., *Brain*, 1954, **77**, 549.
2 Shy, G. M., and McEachern, D., *J. Neurol. Neurosurg. Psychiat.*, 1951, **14**, 101.
3 Nevin, S., *Quart. J. Med.*, 1936, **5**, 51.
4 Adams, R. D., Denny-Brown, D., Pearson, C. M., *Diseases of Muscle: A Study in Pathology*, 1953. Cassell, London.


### Pitch in Optical Factories

**Q.**—*A worker in an optical factory uses pitch to stick lenses on to mounts for grinding. His hands become heavily contaminated with the pitch, since the nature of the work precludes the wearing of gloves. Is there any danger of epithelioma, and, if so, what precautions should be taken?*

**A.**—Pitch warts and epithelioma of the skin do arise occasionally in workers who handle pitch in optical factories. "Epitheliomatous ulceration" caused by pitch and tar is notifiable under Section 66 of the Factories Act to H.M. Chief Inspector of Factories, 19, St. James's Square, London, S.W.1. These workers undergo periodical medical examination (at present voluntary) at six-monthly or shorter intervals in order to secure early diagnosis and treatment of the skin lesions.

Preventive measures consist in (1) the substitution of pitch for embedding the lenses by less harmful substances—for example, certain types of wax; (2) alteration of the method of working to avoid if possible contamination of the skin with pitch; (3) the application of a special barrier cream (there are several excellent creams on the market) before work; and (4) removal of the pitch from the skin with a vegetable oil and subsequent washing with hot water and soap. The Factory Department has issued two leaflets on the subject: *Notification of Epitheliomatous and Chrome Ulceration* (Form 1710) and *Epitheliomatous (Skin) Ulceration as Affecting Pitch and Tar Workers* (Form 1782). Both are obtainable from H.M. Stationery Office. Further reference to the prevention of skin lesions is made in another leaflet *Dermatitis—Cautionary Notice* (Form 367), which can also be obtained from H.M. Stationery Office.

### Treatment of Cyanide Poisoning

**Q.**—*What antidotes should be kept in an electroplating shop for accidental cyanide poisoning for administration (a) by lay people, and (b) by a doctor? What are the chances of saving life?*

**A.**—Cyanide poisoning in electroplating shops is not very common, and prevention is better than cure. The person in charge should ensure that the dangers are appreciated and that the shop is adequately ventilated. He should also be instructed in the symptoms of poisoning, so that prompt action can be taken. In the event of a case of poisoning the doctor should be sent for immediately and the interval before his arrival spent in giving inhalations of amyl nitrite and starting artificial respiration. The best thing the doctor can do if the patient is still alive is to carry out the course of treatment advocated by Chen, Rose, and Clowes.[1] This depends on the detoxication of the cyanide by forming first cyanmethaemoglobin and then thiocyanate. This is done by giving 0.3–0.5 g. of sodium nitrite intravenously in 10–15 ml. of water to form methaemoglobin to combine with the cyanide. This is followed by the slow (10 minutes) intravenous injection of 25 g. sodium thiosulphate in 50 ml. of water. Syringes and ampoules for these injections and ampoules of amyl nitrite should be kept in a convenient place. Speed is essential in the treatment of cyanide poisoning, for the survival time may be very short. However, successful results have been reported with this method, and it would seem to offer the best chance of saving life.


REFERENCE

1 Chen, K. K., Rose, C. L., and Clowes, G. H. A., *Amer. J. med. Sci.*, 1934, **188**, 767.


### Oestrone in the Assay of Urinary 17-Ketosteroids

**Q.**—*Oestrone has a ketone group at C 17 of the steroid ring. Is it therefore estimated along with the androgens in the urine assay for 17-ketosteroids? If so, why are 17-ketosteroids absent in the urine of some women with Addison's disease?*

**A.**—In the sense used in this question, "17-ketosteroids" is a contraction for *neutral* 17-ketosteroids—that is to say, steroids which are neither acidic nor basic in their reaction. Oestrone is a 17-ketosteroid, but the A ring in the molecule is phenolic and therefore it is an acidic 17-ketosteroid. In estimating neutral 17-ketosteroids the urinary extract is washed with an alkaline solution which removes any acidic compounds. Thus oestrone is not estimated with the neutral 17-ketosteroids, and this is why the neutral 17-ketosteroid excretion is zero in women with Addison's disease.

### Explosives and Impotence

**Q.**—*A man who has worked on explosives in a Royal Ordnance Factory suffers from inability to ejaculate. Is there any evidence that the dust of explosives, such as T.N.T., "cordite," "torpex," etc., can cause an organic impotence?*

**A.**—I know of no instance of the dust of an explosive causing impotence and I find it difficult to explain the impotence of this man along these lines. It would be interesting to know whether he had any previous sexual difficulties of a minor kind. I think it likely that a careful psychological investigation will show either that he has previously had sexual difficulties or that his sexuality has always been weak. In all probability this man does not have sexual dreams and has never wanted to masturbate; in other words, he is a man with very little sexual feeling.

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**Correction.**—In the report of the College of General Practitioners' symposium on the general-practitioner obstetrician (*Supplement*, November 26, p. 141) Dr. K. D. Salzmann (Reading) should have been mentioned as taking part in the discussion, instead of Dr. T. Stansfield.


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